ENGINEERING NEWS-RECORD

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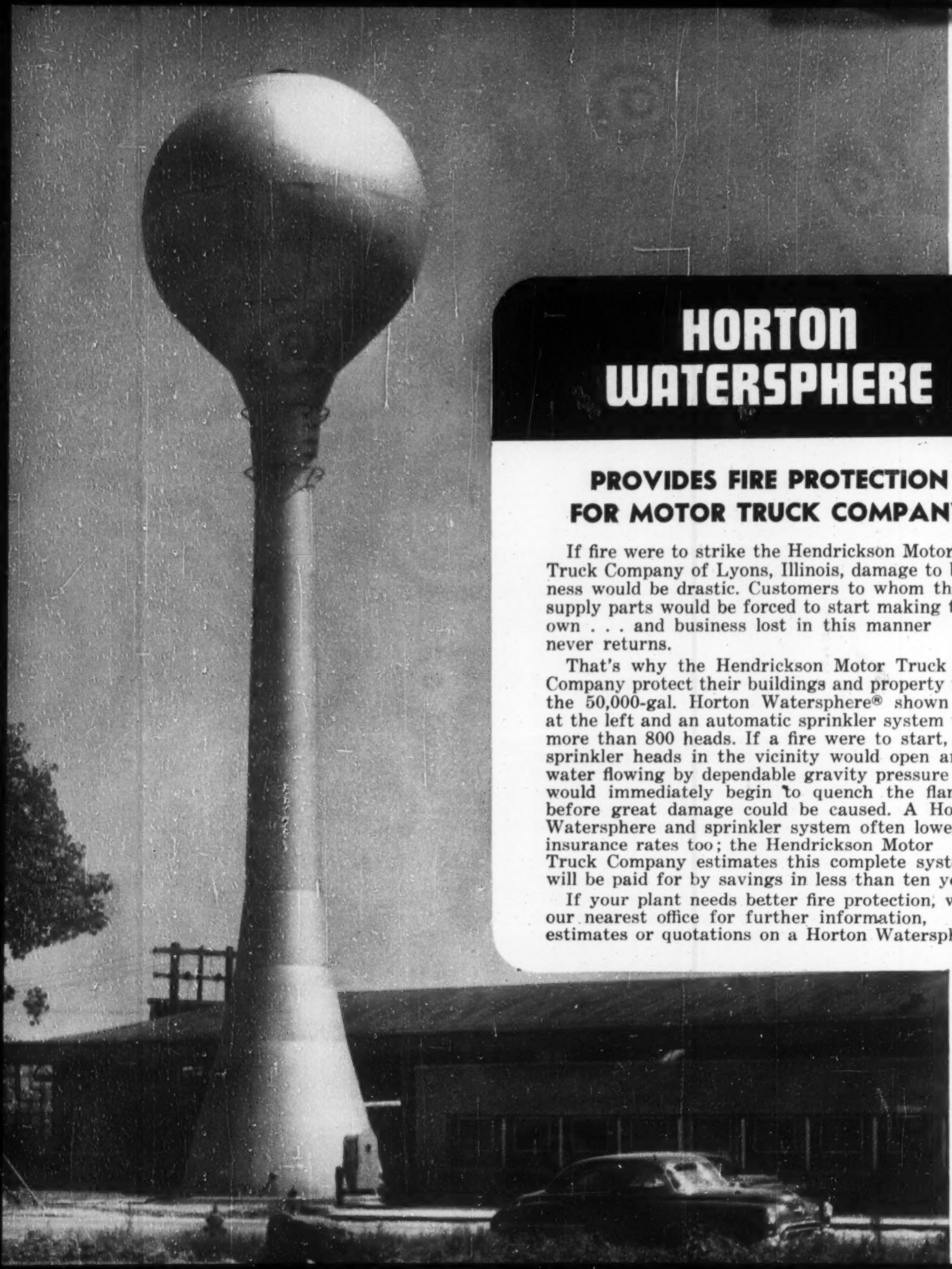


HORTON WATERSPHERE

PROVIDES FIRE PROTECTION FOR MOTOR TRUCK COMPANY

If fire were to strike the Hendrickson Motor Truck Company of Lyons, Illinois, damage to business would be drastic. Customers to whom they supply parts would be forced to start making their own . . . and business lost in this manner never returns.

That's why the Hendrickson Motor Truck Company protect their buildings and property with the 50,000-gal. Horton Watersphere® shown at the left and an automatic sprinkler system with more than 800 heads. If a fire were to start, sprinkler heads in the vicinity would open and water flowing by dependable gravity pressure would immediately begin to quench the flames before great damage could be caused. A Horton Watersphere and sprinkler system often lower insurance rates too; the Hendrickson Motor Truck Company estimates this complete system will be paid for by savings in less than ten years.

If your plant needs better fire protection, write our nearest office for further information, estimates or quotations on a Horton Watersphere.

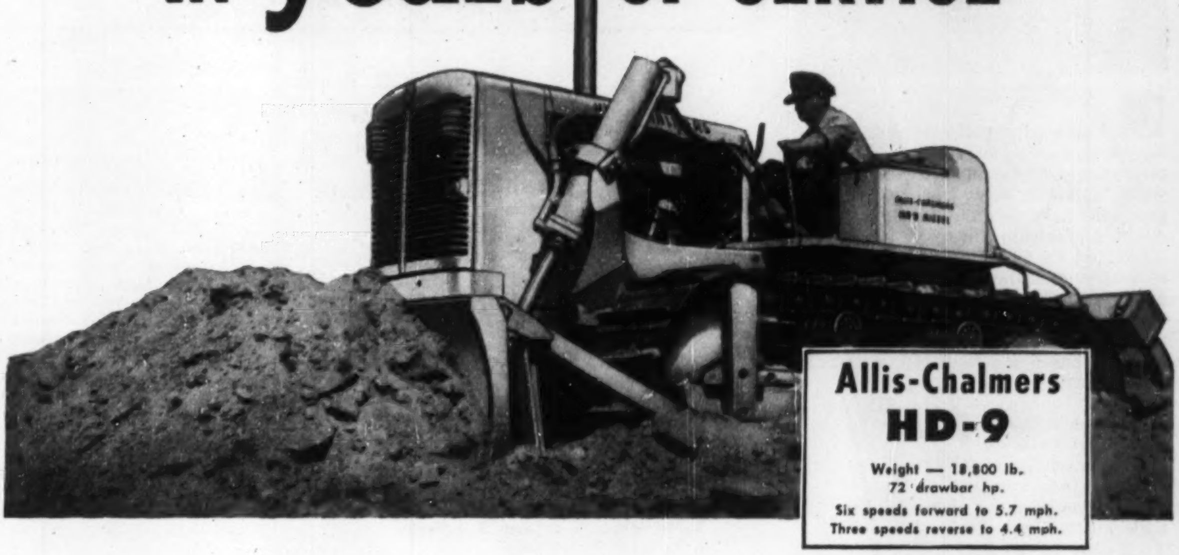
CHICAGO BRIDGE & IRON COMPANY

Atlanta 3 [illegible] Building
Birmingham [illegible]
Boston 10 [illegible]
Chicago 4 [illegible] Building
Cleveland 15 [illegible] Building
Detroit 26 [illegible] Building
Houston 2 [illegible] Life Building
Los Angeles 17 [illegible] Building
New York 6 [illegible] Building
Philadelphia 3 [illegible] Building
Pittsburgh 19 [illegible] Building
Salt Lake City 4 [illegible] Street
San Francisco 4 [illegible] Street
Seattle 1 [illegible] Building
Tulsa 3 [illegible] Building

Plants in [illegible], SALT LAKE CITY and GREENVILLE, PA. In Canada: [illegible]

HERE'S TRACTOR VALUE YOU CAN MEASURE

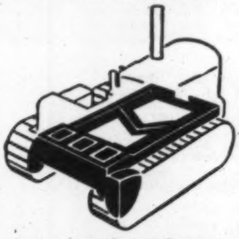
IN yards PER DAY... IN years OF SERVICE



Allis-Chalmers HD-9

Weight — 18,800 lb.
72 drawbar hp.
Six speeds forward to 5.7 mph.
Three speeds reverse to 4.4 mph.

The Allis-Chalmers HD-9 Tractor offers performance reliability and ease of servicing that pays off in year-after-year efficiency. Here's what we mean:



BUILT TO STAND THE GAFF OF DAILY USE FOR YEARS...

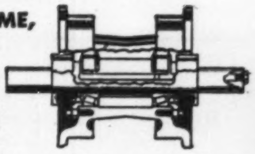
One-piece, welded main frame forms a continuous, strong backbone that means longer life for each tractor.

Oil-enclosed track release mechanism keeps adjustment at required setting and reduces track maintenance and breakage.

Smooth, efficient power train gives extra life, greater ability to absorb the punishment of tough jobs for every gear, shaft and bearing in the tractor.

A-type truck frames permit free track oscillation and eliminate twists and strains caused by rough terrain.

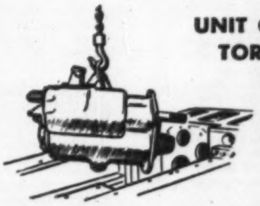
EASIER LUBRICATION SAVES TIME, HELPS PROTECT EQUIPMENT



Lubrication period of 1,000 hours for final drives, truck wheels, idlers and support rollers saves both grease and time. Spring-loaded, Positive Seals keep grease in, keep dust and water out.

Fewer, more accessible lubrication points make short work of a chore. No lube points at all under tractor.

UNIT CONSTRUCTION PUTS TRACTORS BACK TO WORK SOONER



Transmission can be removed as a unit without removing clutch, final drive or bevel gear.

Engine can be removed without disassembling clutch.

Truck frame can be dismantled without removing final drive, sprocket or equalizer spring.

Clutch assembly can be removed without disturbing engine or transmission.

Final drive gear and intermediate gear can be removed without disturbing steering clutch.

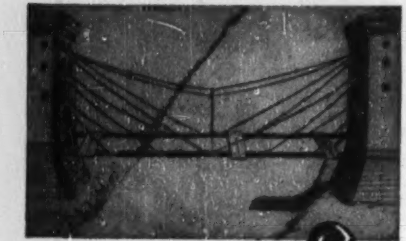
Each steering clutch can be removed independently without disturbing final drive or bevel gear.

• • •

Let your distributor tell you more about the rugged construction, ease of servicing and outstanding performance ability of the Allis-Chalmers HD-9 Tractor. It's a story that adds up to value you can measure in yards per day and in years of service.

ALLIS-CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

Verantius' Pons Ferreus
A SUSPENSION BRIDGE DESIGN
early seventeenth century



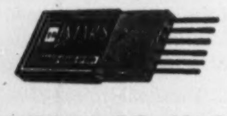
2H
2886 J.S. STAEDTLER, INC. MARS LUMOGRAPH
MADE IN GERMANY
2H
1001 J.S. STAEDTLER MARS-LUMOGRAPH TECHNICO

Engineering problems have been growing more and more complex in the past 300 years, and with them has grown the need for greater drafting precision. Since 1662, when the first Staedtler pencils were produced in Nurnberg, Germany, Staedtler has made constant improvements in pencil design and manufacture. Today, the Mars-Lumograph is America's finest imported drawing pencil; in the clutch pencil field the combination of the new 1001 Mars Technico push-button lead holder and 1904 Mars-Lumograph imported drawing leads insures your having the very best.

The 2886 Mars-Lumograph drawing pencil gives you precise thickness and the blackness of line needed for crisper, cleaner prints. Perfectly graded in 19 degrees; EXEXB to 9H. $1.50 per dozen—less in quantity.

The 1001 Technico Mars-Lumograph push-button lead holder costs no more than ordinary holders, has a noiseless, smooth-working, low-friction clutch mechanism, lightweight wood construction with perfect balance and, built into the push-button cap, a unique lead sharpener. $1.50 each—less in quantity.

1904 Mars-Lumograph Imported Drawing Leads are so opaque that inking-in is not necessary. Leads are ribbed for firm clutch grip and each has a removable cap which prevents sliding from holder. Available in 18 degrees; EXB to 9H. $1.20 per dozen—less in quantity.



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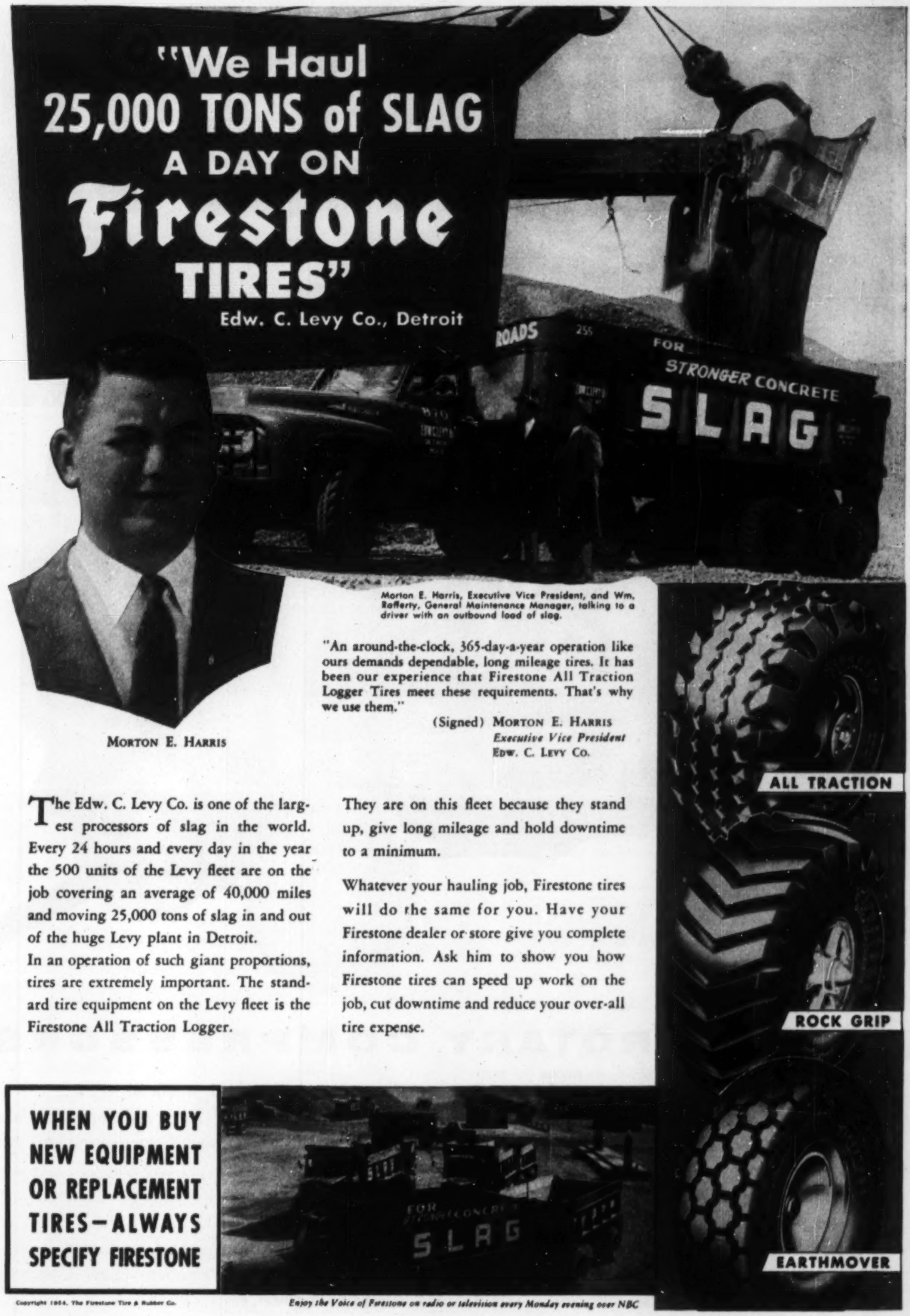


"We Haul 25,000 TONS of SLAG A DAY ON Firestone TIRES"

Edw. C. Levy Co., Detroit

Morton E. Harris, Executive Vice President, and Wm. Rafferty, General Maintenance Manager, talking to a driver with an outbound load of slag.

Morton E. Harris

"An around-the-clock, 365-day-a-year operation like ours demands dependable, long mileage tires. It has been our experience that Firestone All Traction Logger Tires meet these requirements. That's why we use them."

(Signed) Morton E. Harris
Executive Vice President
Edw. C. Levy Co.

The Edw. C. Levy Co. is one of the largest processors of slag in the world. Every 24 hours and every day in the year the 500 units of the Levy fleet are on the job covering an average of 40,000 miles and moving 25,000 tons of slag in and out of the huge Levy plant in Detroit.

In an operation of such giant proportions, tires are extremely important. The standard tire equipment on the Levy fleet is the Firestone All Traction Logger. They are on this fleet because they stand up, give long mileage and hold downtime to a minimum.

Whatever your hauling job, Firestone tires will do the same for you. Have your Firestone dealer or store give you complete information. Ask him to show you how Firestone tires can speed up work on the job, cut downtime and reduce your over-all tire expense.

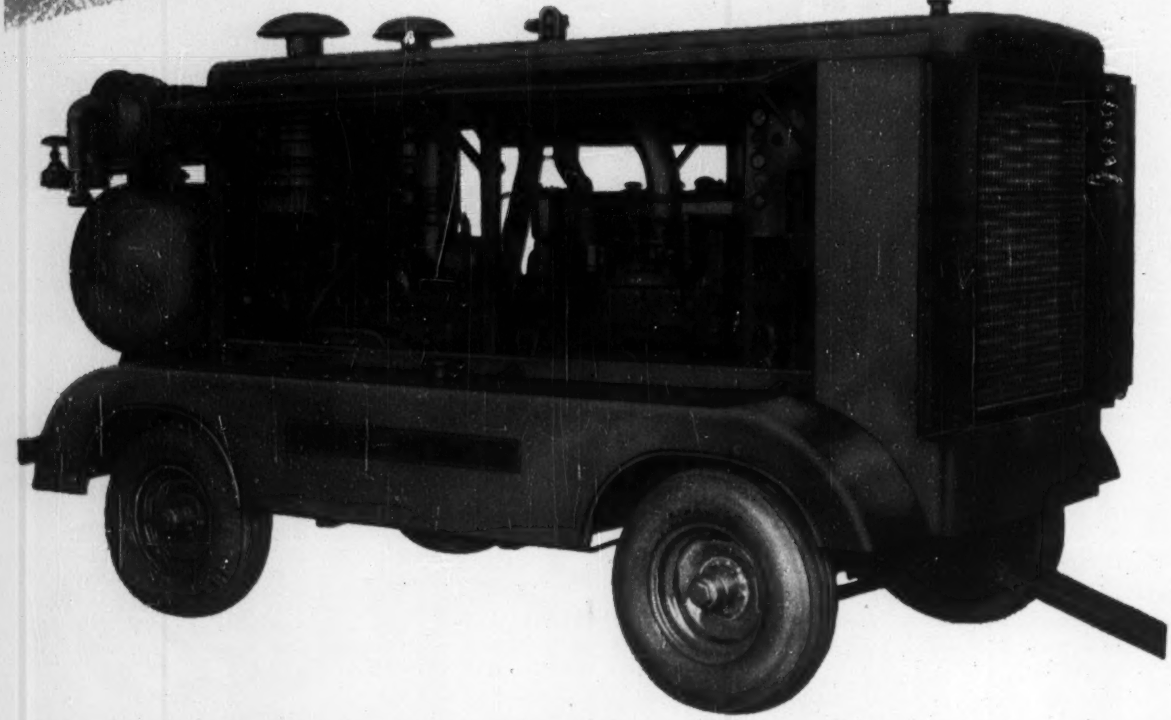
WHEN YOU BUY NEW EQUIPMENT OR REPLACEMENT TIRES—ALWAYS SPECIFY FIRESTONE

Copyright 1954, The Firestone Tire & Rubber Co.

Enjoy the Voice of Firestone on radio or television every Monday evening over NBC

WEIGH LESS

Capacities: **125, 210, 365, 600 cfm.**



. . . CP ROTARY COMPRESSORS

After 18 months of proving themselves on the job, CP Power Vane Rotary Compressors are now available in sizes of 125, 210, 365, and 600 cfm. Having no pistons, connecting rods, valves or other reciprocating parts to maintain, they afford thousands of hours of trouble-free service. Their oil injection system provides copious lubrication, cools the air during compression and assures long rotor blade life . . . yet oil consumption is remarkably low and air is delivered practically oil-free.

Smooth running CP Rotary Compressors also have a variable speed capacity regulator which prolongs life and reduces wear and tear . . . increases over-all economy. CP Rotaries are available with Hercules gasoline and General Motors diesel engines. For more information, write for Bulletin SP-3084-2. *Chicago Pneumatic Tool Company, 8 East 44th Street, New York 17, N. Y.*

THAN PISTON TYPES OF HALF THE CAPACITY...

Three ways better...

1 **Tapered roller main bearings** afford positive positioning of rotor between compressor cylinder end plates.

2 **Safety friction drive** between engine and compressor limits transmitted torque — provides added protection for engine and compressor against shock.

3 **Perfect alignment of all parts** is afforded by metal-to-metal joining of housings and fitted-step construction of mating surfaces and shaft-mounted parts.

IDEAL WHERE **PORTABILITY** AND **RELIABILITY** COUNT!

- CP Portable Power Vane Rotary Compressors occupy 30% less space than equivalent piston type machines.
- Compressor weighs less, is more compact than piston type machines of half the capacity.
- Due to oil injection, discharge air is 100° lower than in equivalent piston type compressors.
- Spring suspension, automotive steering on four wheel models, tilt operation, compactness and light weight make CP Rotary Compressors ideal for towing and maneuvering anywhere.
- Rotary shaft seal at drive end excludes dirt from shaft bearings.
- Automatic safety controls stop engine in case of excessive water temperature or oil failure.

CP

Chicago Pneumatic 8 East 44th Street, New York 17, N. Y.

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES • ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

irrigation just grows and grows . . .

PHOTO COURTESY GORMAN-RUPP COMPANY, MANSFIELD, OHIO

gallons of water for thirsty acres with modern, thrifty **CHRYSLER V8** *hemispherical combustion*

With irrigation, every farmer and grower can virtually assure himself a record crop *every* year. The investment in pump, pipe and sprinklers pays for itself in a surprisingly short time.

Here is a Gorman-Rupp single-stage centrifugal pump designed especially for portable pipe irrigation systems. It is drawing 850 gallons of water per minute from the river to irrigate several acres of corn. To maintain this gallonage at 130 pounds pressure, its 331 cubic inch displacement Chrysler Industrial Model 24 V8 Engine is turning at only 76 per cent of its maximum governed speed.

Like other leading manufacturers, Gorman-Rupp picks the Chrysler Power that will match its equipment requirements. For example, smaller pumps are powered with Chrysler Model 30 and 16 Engines which deliver ample power for those units; but, since this Model 55M Pump was designed for high capacity pumping, Gorman-Rupp installs the 180-horsepower Chrysler Industrial Model 24 V8 Engine. Result of using this modern short-stroke, low friction engine: High water volume *plus* outstanding operating economy.

Regardless of the type of equipment you manufacture, if it requires industrial power within our 230 to 413 cubic inch displacement range, there's an economical power-proved Chrysler Industrial Engine to meet your requirements, and a long list of optional equipment items with which your engines can be factory-equipped for *better* specialized performance.

And remember, Chrysler Power is not expensive. Production-line methods adapted to specialized industrial engine building provide a custom-built engine at mass-production prices.

Before you install any engine, see a Chrysler Industrial Engine Dealer or write for detailed information: **Dept. 86, *Industrial Engine Division, Chrysler Corporation, Trenton, Mich.***

CHRYSLER *Industrial Engines*

INDUSTRIAL ENGINE DIVISION • CHRYSLER CORPORATION

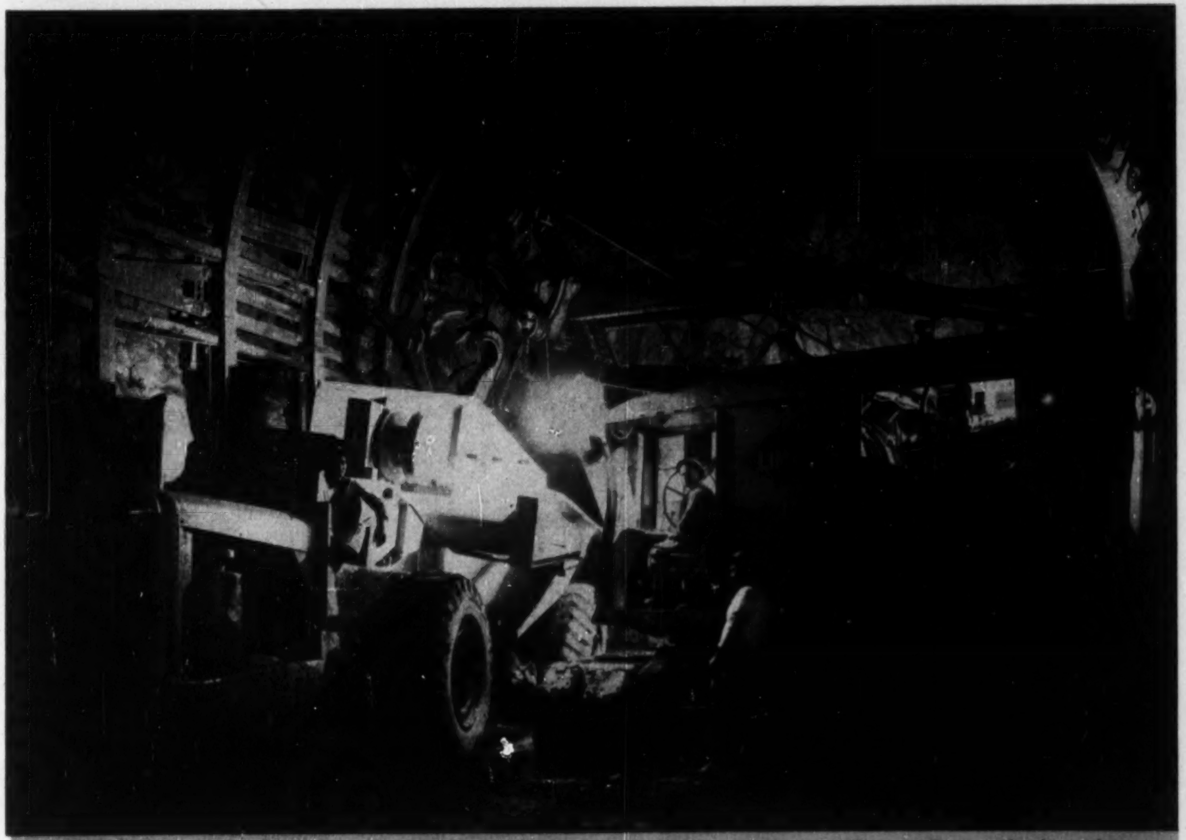
HORSEPOWER WITH A PEDIGREE

AGRICULTURE • INDUSTRY • CONSTRUCTION • OIL FIELDS

GULF PRODUCTS *and* FINE SERVICE

keep equipment rolling

on West Virginia Turnpike Project



Bates & Rogers Construction Corporation, Chicago, Illinois, have the contract for the only tunnel on the West Virginia Turnpike Project, which includes lining and flooring. It will be a two-lane tunnel, 2665 feet long and with a finished diameter of 36 feet. Work on this particular contract involves 25,000 cubic yards of open cut excavation, 91,800 cubic yards of tunnel excavation, 20,800 cubic yards of concrete tunnel lining, and the installation of permanent steel supports. Bates & Rogers also have the contract for the concrete footers and piers supporting the Four Mile Fork Bridge adjacent to the south end of the tunnel, and another contract for the flooring of this bridge plus two other bridges. As usual, this prominent Chicago contractor is getting smooth performance from every unit of equipment through the use of Gulf quality petroleum products.

ANOTHER important construction job where equipment is making an outstanding record of dependable performance with the help of Gulf Quality Products and Fine Service.

Here is why Gulf is the preferred supplier of petroleum products to so many leading contractors, like Bates & Rogers Construction Corporation, for example: Gulf lubricants provide an extra margin of protection—whether it is hot or cold, wet or dry. And Gulf fuels help insure full power.

When Gulf quality products are combined with expert engineering counsel and prompt delivery service, you get a Gulf package that is bound to smooth the way to greater yardage and lower maintenance costs.

Gulf quality lubricants and fuels—and that Good Gulf Service—are quickly available to you through more than 1400 warehouses in 31 states from Maine to New Mexico.

GULF

CONTRACTORS SAVE UP TO 40% ON SHORING COSTS

Norwich State Hospital, Norwich, Conn.
Architect: Walter P. Crabtree, Jr., West Hartford, Conn.
Contractor: Mondelci & Benvenuti, New London, Conn.
Superintendent of Construction: Raymond Banks

HĪCO* Girders span 29 feet without support Can be reused 100 times or more . . .

HĪCO Girders offer contractors unprecedented savings in time and in the cost of supporting forms for cast-in-place or precast concrete construction. Adaptable to spans of any length, they are quickly erected and stripped. In less than one hour, four men can erect or take down all the HĪCO Girders required to support 800 square feet of forms.

And because they can be used again and again — 100 times or more — HĪCO Girders eliminate the waste in timber shoring, pay for themselves in the savings they effect.

HĪCO Girders provide an exclusive and convenient method of cambering. By tightening a turnbuckle the girder is bowed upward by a predetermined amount based on the length of span and the load to be applied.

As concrete is poured, or precast blocks are set in place, the girders are deflected by the load to a perfectly straight line and held immovably in position until the forms are stripped. Stripping is accomplished by loosening turnbuckle and then disengaging end slides from their supports and removing girder in one piece.

Widely Adaptable—HĪCO Girders may be used with equal facility in reinforced concrete or fireproof structural steel construction. Because they require no shoring, height of ceiling is never a problem. The small sections also readily form arches, tunnels, and irregular shapes.

Technical Help Furnished—From drawings furnished by contractor, Webrib engineers make a detailed layout showing the number and type of HĪCO Girders required. These are shipped to the job site already assembled and marked for identification. Although cambering is quickly, easily done without special tools, a Webrib engineer will visit the site and work with contractor personnel to familiarize them with all phases of use.

Lease or Buy—HĪCO Girders are available on lease with the option to buy; lease can be applied against purchase price. They can be purchased outright if desired. Reuse permits the cost of HĪCO Girders to be amortized at so low a rate per job that savings they effect soon pay for them. Write **for Bulletin H-100 for complete technical data and price information.**

Girders come in 2, 3, 4 ft. sections. End sections adjust from 20-26" and 24-33". Sections combine for desired length. Cambered before or after erecting, ceiling weight deflects girders, keeps them straight and level through curing period.

HĪCO* GIRDERS

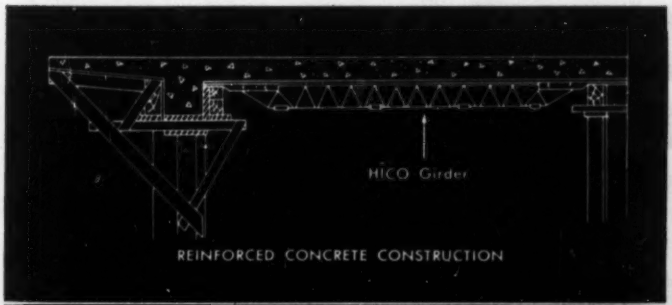
WEBRIB STEEL CORP.

120 BROADWAY, NEW YORK 5, NEW YORK

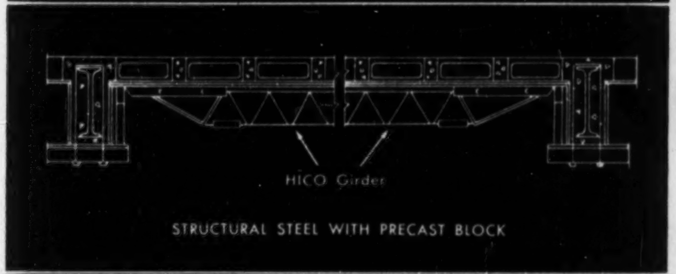
*HĪCO is a trade mark of the Webrib Steel Corp., makers and distributors of HĪCO Girders.

HĪCO* GIRDERS SPEED ERECTION & STRIPPING OF CONCRETE FORMS

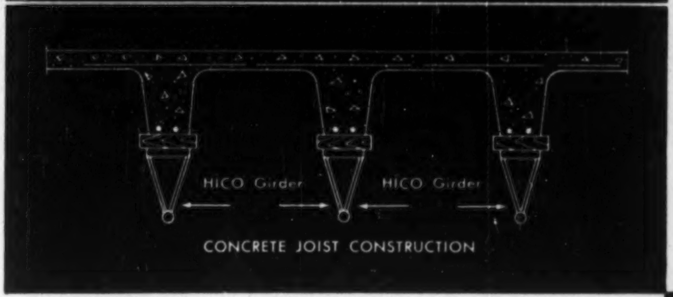
Strong, light temporary joists are adaptable to many forming problems



REINFORCED CONCRETE CONSTRUCTION



STRUCTURAL STEEL WITH PRECAST BLOCK

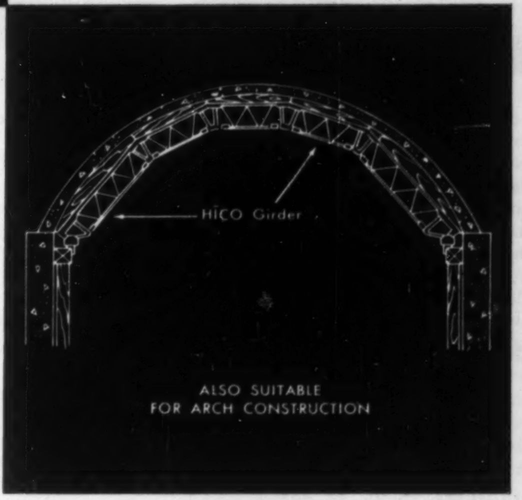


CONCRETE JOIST CONSTRUCTION

HĪCO Girders insure level floors. The turnbuckles that assemble the sections are adjustable to provide camber required to compensate for dead load deflection. When the load is applied, the top chords of the individual sections making up each girder are in compression, making it, in effect, a single integrated member with an exceptionally high safety factor. This deflection under load also makes the girders self-aligning—forces the end sections against the whalers on which they rest until they are to be dismantled.

Type V-270 HĪCO Girders, spaced 18" o.c., will support 150 psf on a clear span of almost 19 feet . . . 25 psf on spans of nearly 30 feet. This great supporting strength eliminates the need for intermediate shoring, leaves finished floor areas unobstructed for other work or storage of materials beneath the slab.

No other form support system possesses *all* the advantages, *all* the economies of HĪCO Girders.



ALSO SUITABLE
FOR ARCH CONSTRUCTION

Write Webrib Steel Corp., 120 Broadway, New York 5, N. Y., for Bulletin H-100 for technical data and price information.

HĪCO* GIRDERS

WEBRIB STEEL CORP.

120 BROADWAY, NEW YORK 5, NEW YORK

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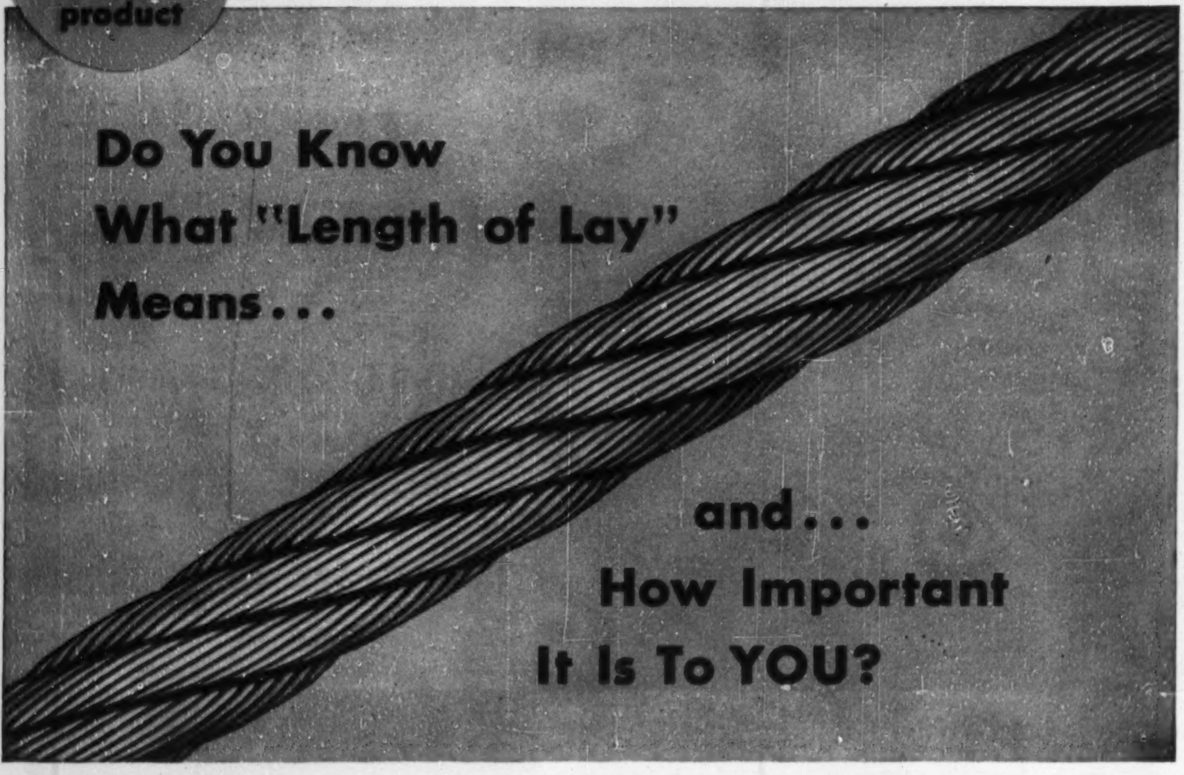
an
ACCO
product

AMERICAN CABLE

"GREEN STRAND" WIRE ROPE



Length of lay is the distance allowed for a strand to make one complete turn around the wire rope. This distance varies depending upon the construction and diameter of the rope, and upon the service requirements. The service factors which must be considered are elasticity, flexibility, stability, resistance to abrasion, and strength.

Elasticity is desired in order that a wire rope may absorb the application of loads gradually and not with sudden shock. The shorter the lay, the more elasticity in the rope. The reverse is also true.

Flexibility is that quality which a rope possesses which permits it to be flexed or bent around sheaves and drums. This property is desired from a standpoint of fatigue resistance of wires in a rope when subjected to bending stresses. An increase in length of rope lay tends to make the rope less flexible. This does not necessarily mean that a rope with a longer lay would also have less resistance to bending fatigue with which the term flexibility is often confused.

Stability of construction can be described best by observing the result of twisting the ends of a towel in opposite directions. You will find that the structure becomes harder with the increase in the amount of twisting. It will resist distortion when outside compressive force is applied. The same is true in a strand or in a finished rope. In effect, the shorter the lay the more it will resist crushing.

Abrasion resistance would seem to require more and larger crown wires per foot exposed to wear. Shortening the lay exposes more crown wires and makes the rope more flexible so larger diameter wires can be used. Then it becomes a matter for our engineers to set the length of lay to provide abrasion resistance but not at the expense of the other factors.

Strength of a wire rope is definitely influenced by the length of its rope lay. Of two ropes, identical except for their rope lay, the one with the longer lay will be stronger. Although the shortening of lays tends towards certain desirable conditions, a critical point is always reached beyond which the lay cannot be shortened without making the rope stiff.

If all this sounds mighty complicated, forget it. We don't expect you to become a wire rope engineer. That's our job—to engineer and make the best possible wire rope for you. In our "Wire Rope Recommendations for General Contractors" you will find the correct constructions of TRU-LAY Preformed "Green Strand" for your equipment. See your American Cable distributor or write us for a copy of **No. 128-B.**

ACCO

American Cable Division
AMERICAN CHAIN & CABLE

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plus
ACCO
Registered
Wire Rope
Slings

MASTER PLUMBER:

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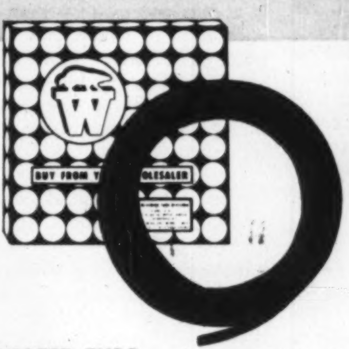

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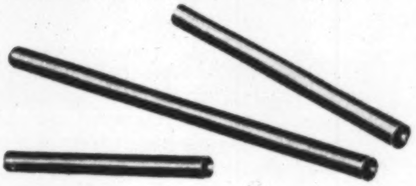

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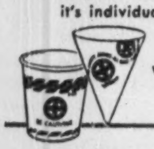

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READER COMMENT

Progress in fire prevention

Sir: The editorial in ENR May 13, p. 104, "New fire hazards," calls attention to a detail of building construction that is often overlooked. I am happy to be able to say that some progress is being made toward a greater awareness of this situation. As an example, some conferences between representatives of the National Fire Protection Association and the Insulation Board Institute have resulted in a decision by that industry to give commercial wallboards a coating on one side that will reduce substantially the rate at which flame spreads over this side when exposed.

A word might be said about this general problem to indicate that while many present building regulations are not designed to stop dangerous practices, there is no reason why building regulations cannot be drawn for that purpose.

Combustible finishes or decorations obviously add to the fire hazard in all types of construction. But even where materials are noncombustible, there are some fire problems: When sheet material is glued on, the adhesive may add to the combustible material present. When new finishes are installed to improve the appearance of old walls and ceilings, as well as for soundproofing and insulation effects, rigid sheet material is sometimes installed on nailing strips, producing concealed spaces in which fire may spread. Such spaces can be fire-stopped, by crosswise nailing strips at about ten-foot intervals. Also, acoustical and insulation materials hung on suspended ceilings or on new partitions built out from existing walls result in concealed spaces.

As linings of air conditioning ducts, combustible insulation is particularly dangerous. Insulating material in loose form, if combustible, is subject to easy ignition. Loose, combustible material, installed in voids of combustible construction (between studs or joists), is a hazard to the extent to which it is subjected to ignition from sparks, electric defects, hot chimneys, smokepipes or other heat sources.

Some types of insulation have a combustible covering of paper, often oil-treated or asphalt-coated. The paper covering is a hazard, even with a noncombustible insulating material.

A method of grading various surfaces according to their fire hazard is now available. Tunnel furnaces have been set up at Underwriters' Laboratories, Inc., Chicago, Factory Mutual Laboratories in Norwood, Mass., and at the National Bureau of Standards, Washington, D. C. Sample wall or ceiling finish assemblies, acoustical boards or sheet insulation materials can be set up in furnaces, and the rate of surface flame spread, fuel and smoke contributed can be determined. This is a different grading than fire-resistance tests to which you made reference. The flame-spread grading provides a yardstick for appraising the relative danger to life and property presented by combustible surface materials.

Grading of finishing materials according to fire-spread characteristics by the Underwriters' Laboratories' method is based on a scale with two known points. One of these is noncombustibility. The other is the combustibility of red oak boards. Between these two points there is a "slow-burning" group of materials. A "slow-burning" finish may give off as much smoke and contribute as much fuel as red oak board but should have a measurably slower rate of flame spread.

Taking red oak as 100 on this scale and noncombustible material as zero, my personal judgment would be to class as "slow-burning" material that which measures 75 or less in a tunnel furnace test for surface flame spread. Materials giving off more smoke or contributing more fuel than red oak are relatively more dangerous. When the rate of surface flame spread is about twice that of red oak, such materials are considered "quick-burning" and hazardous.

This grading has definite limitations but it provides a useful method to exclude the dangerous types of finishes where they should not be used. The grading does not entirely cover the effect of the position or arrangement of the material used (the effect of a concealed space behind a combustible wallboard, for example) nor does it cover possible toxic effects of products of combustion.

Horatio Bond
Chief Engineer
National Fire Protection Assn,
Boston, Mass.

CALENDAR

Conference on new developments in engineering design, Virginia Polytechnic Institute, Blacksburg, Va., Aug. 4-6.

National Council of State Boards of Engineering Examiners, annual meeting, Hotel Saint Paul, St. Paul, Minn., Aug. 26-28.

American Water Works Assn., fall meeting, Montauk Manor, Montauk, N. Y., Sept. 9-10.

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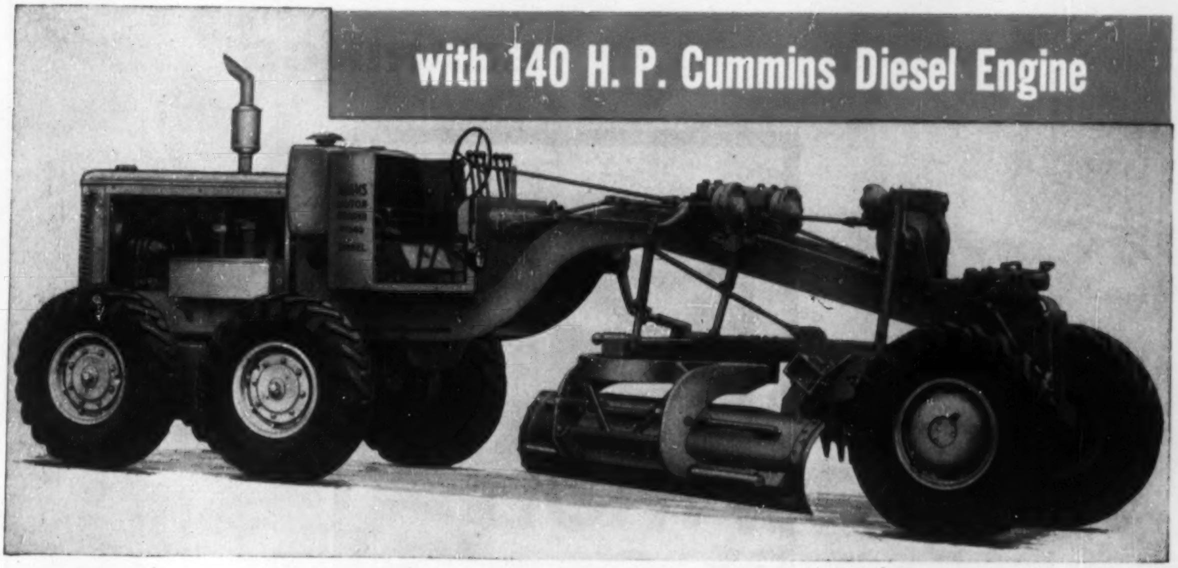

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The Adams "660" has capacity and versatility beyond any motor grader you have ever used.

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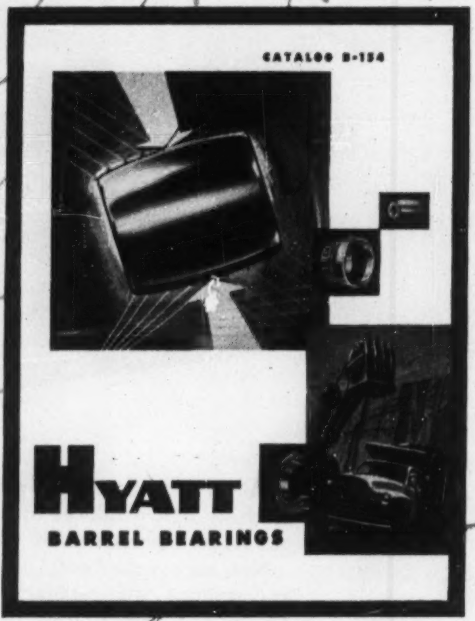
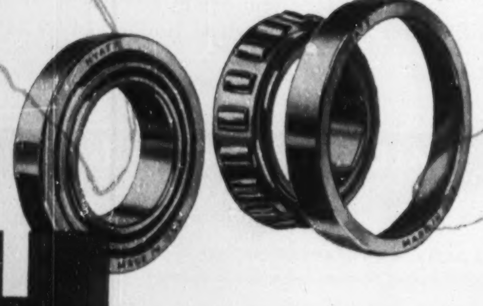


CATALOG B-154

HYATT
BARREL BEARINGS



Got a bearing problem? Just reach for Hyatt's new Barrel Bearing Catalog! This is one catalog engineers have been waiting for, because it's essentially *a guide to lower maintenance costs!* Barrel Bearings are not only dual-purpose in design; they're also *self-aligning*. They operate with full efficiency under misalignment conditions which cause excessive wear in ordinary bearings. If *your* job involves bearing specifications, make sure you have Hyatt Catalog No. B-154. It puts a complete line of Barrel Bearings right at your finger tips. Write to Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.

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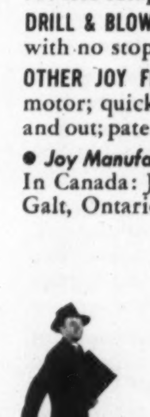

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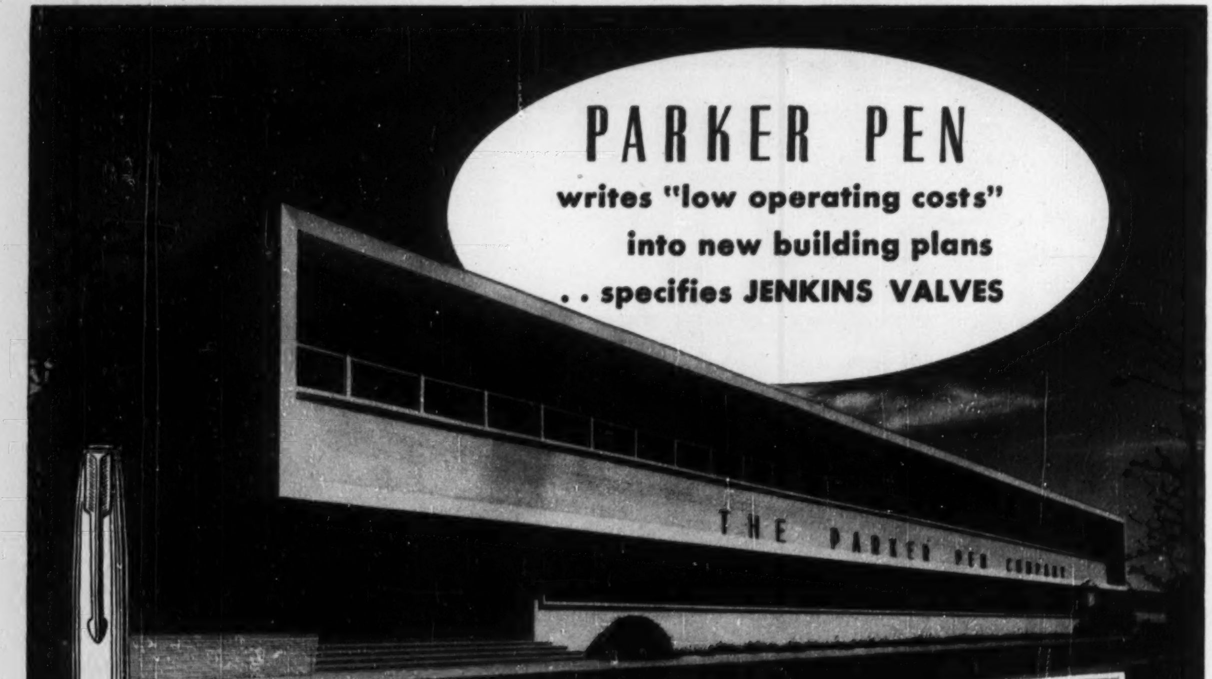
writes "low operating costs" into new building plans . . specifies JENKINS VALVES



Architect: JOHN J. FLAD & SON, MADISON, WISCONSIN
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BELING ENGINEERING CONSULTANTS, MOLINE, ILL.
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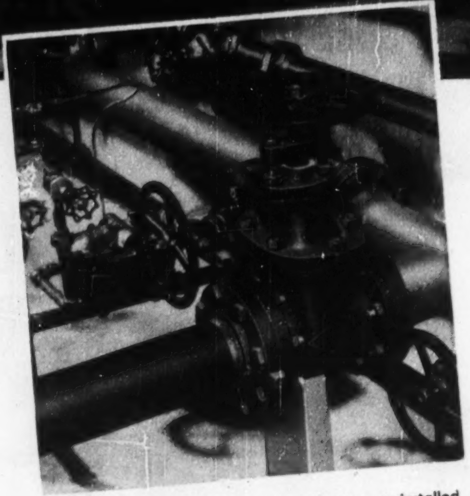
Parker Pen Company's new $4,500,000 plant at Janesville, Wisconsin, reflects in fine exterior styling the advanced interior design for operating efficiency. Facilities to triple previous production are combined in an ideal working environment. It is a fitting new home for the company that has earned the reputation, "Master pen makers for the world."



At the new Arrow Park plant, Jenkins Valves are installed at control points on pipelines circulating the 20,000 gallons of oil, 3½ million gallons of water, and 20,000 cubic feet of propane gas used monthly, and on all other plumbing, air conditioning, fire protection, and process lines.

In modern buildings, advanced design is indicated largely by facilities that increase the complexity of the piping, and place a heavier burden on its components.

At Parker's new Arrow Park plant, for example, a plant-wide, year-round air-conditioning system, served by two 150 hp boilers, requires up to 1500 gallons of water per minute, delivers 400,000,000 cubic feet of dustless, purified air per day.

To assure trouble-free operation of such facilities, all components must be selected on the basis of proved dependability, safety, and long-range maintenance economy. The decision to standardize on Jenkins Valves was made after careful study of performance records in all types of service.

This confidence in the demonstrated *extra measure* of efficiency and economy provided by Jenkins Valves is shared by plant operating managements in every type of industry.

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ENGINEERING NEWS-RECORD

Vol. 152, No. 25 June 24, 1954

Number of copiesof this issue printed: 63,326

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THE CONSTRUCTION WEEK

NO LICENSE—Another state court decision that contractors should note is an action in the Helena, Mont., district court.

The court ruled that the state's gross vehicle weight tax does not apply to construction and earthmoving equipment insofar as registration, certificates of title and motor vehicle licensing are concerned.

The court action was brought against the State Highway Commission after it tried, by regulation, to require certificates of title and licensing of heavy equipment used by S. Birch and Sons Construction Co., of Great Falls. Birch contended that state laws did not affect highway construction machinery that traveled on highways only as necessary in moving from job to job.

ST. LAWRENCE NOTE—Some of the rejoicing over U. S. approval of the St. Lawrence Seaway (which included dancing in the streets of Canadian towns along the waterway) should be tempered by the realization of the welter of details that remain to be worked out.

One item to be discussed is whether the navigation locks will be on the U. S. or the Canadian side of the river—Canadians have expected confidently that the shipways will utilize some of the existing locks and canals on their side. But the U. S. government may have other ideas.

GRAND OPENING—New York's Thruway Authority spared no adjectives to announce opening of a new 115-mi section of the super-road (ENR June 17, p. 30) scheduled for June 24.

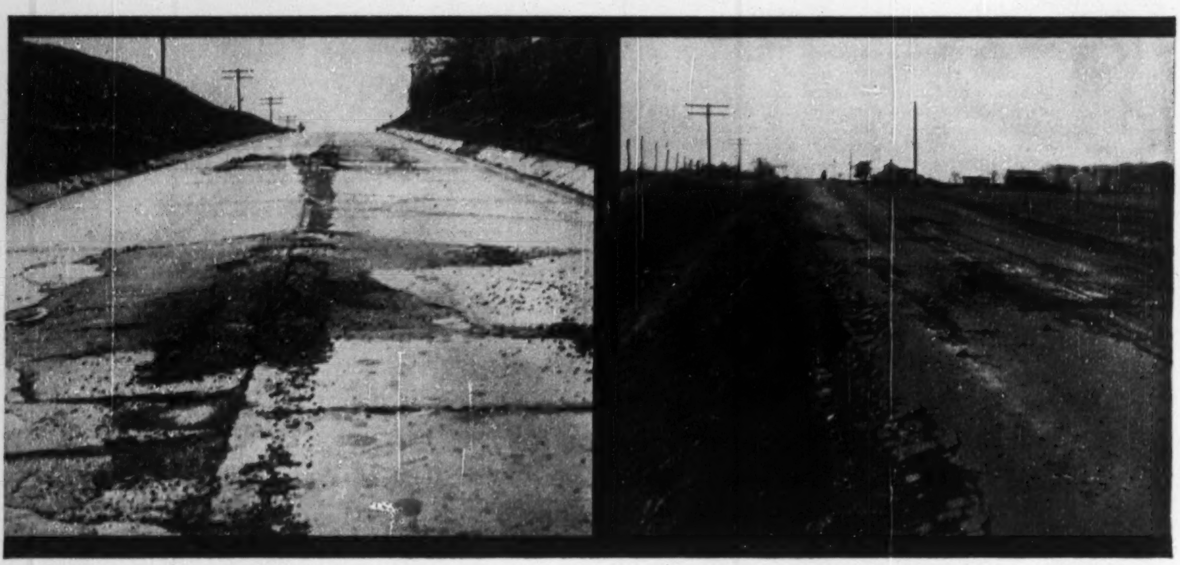
Said an authority announcement, in its best circusese: "Sleek, powerful cars of the future—the likes of which Flash Gordon wouldn't hesitate to park near his space ship, will . . . be in the . . . colossal cavalcade of transportation."

The "colossal cavalcade" (500 cars) will traverse a Thruway section between the hamlets of Lowell and West Henrietta as part of the ceremonies.

SAVE THAT PORT PROJECT!—Taking somewhat unusual action to insure continuance of a dredging project that will link Sacramento with the sea, the Sacramento-Yolo Port District Commission chipped in $2 million toward the $28-million cost of the work.

The money is to be repaid out of hoped-for congressional appropriations at a later date. The Corps of Engineers started the work, had to abandon it in economy moves at the outbreak of the Korean incident. The district's funds are to be used for a re-survey to get the work going again quickly.

THREE SIMPLE STEPS Can Stop Failures Like This



Excess ground water that weakens foundations is responsible for four out of five surface failures. You can stop this trouble and save maintenance dollars with good subdrainage.

Three simple steps will assure a first-class subdrainage system.

1. **PROPER LOCATION**—Any subdrain must be placed at the proper depth and in a location where it will intercept harmful ground water ***before*** it reaches the foundation area. A simple soil survey will show the proper location.
2. **CORRECT FILTER MATERIAL**—A coarse filter will tend to clog, and reduce efficiency of the subdrainage system. To make sure harmful ground water can reach the drain, select a filter material similar to that of concrete sand as specified by A.A.S.H.O.
3. **DEPENDABLE, EFFICIENT CONDUIT**—A subdrainage system must continue to function efficiently year after year. You can assure this by specifying Armco Perforated Pipe. Corrugated metal design assures ample strength to prevent crushing, cracking or breaking. Positive band connectors provide tight joints and prevent malalignment. There is no danger of clogging.

For complete subdrainage data, write Armco Drainage & Metal Products, Inc., 3704 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

ARMCO

ARMCO PERFORATED PIPE

WASHINGTON OBSERVER

A major step toward writing federal water policy into law was launched last week. Legislation sponsored by the National Water Conservation Conference was introduced in Congress by Senators Martin and Butler, chairmen of Public Works and Interior committees of the Senate, and Chairman Miller of the House Interior Committee.

The legislation is designed to write rules into law which would be binding on the agencies that now have a hand in water resource development or regulation—among them Interior's Bureau of Reclammation, Army Engineers, Department of Agriculture, river compact commissions, and the Federal Power Commission.

It would make development of an entire river basin the criterion for approval or disapproval of a project, but would not upset existing rights, contracts, or state laws dealing with water.

All beneficiaries of river developments would be required to pay a share of the cost of federal projects. This means that states, barge operators, and property owners would have to pay for such benefits as navigation improvements, and flood control protection—charges now paid by the federal government.

States, compact groups, and local interests could acquire title to projects built by the federal government with the help of private financing.

The legislation gives all interested parties something to work on. As of now, there's no idea that action would be forthcoming out of this session of Congress. But it will give the Hoover Commission and such other groups in the Administration as the new cabinet committee on water policy something to shoot at.

•

Construction of additional power capacity in the Tennessee Valley areas is hung up in a fundamental political dispute. The prospect of early construction is dim. Opposition from TVA congressmen is almost bound to put off any work until after the November elections.

Eisenhower wants TVA to supply some 600,000 kw of its electricity to the atomic plant at Paducah, Ky., and in turn he wants a combine of the Southern Co. and Middle South Utilities, Inc., to build a steam plant at West Memphis, Ark., to take up the load TVA would have to quit providing regular customers. TVA has been seeking, unsuccessfully, money to build its own extra steam capacity at Fulton, Tenn., so it could serve both AEC and its other TVA customers. Eisenhower last week told AEC to begin negotiations with the Southern-Middle South firms, for a 650,000-kw plant.

Eisenhower's Budget Bureau defends the private construction scheme as being in line with the Administration's policy of letting private utilities have first crack at electric expansion (see page 22).

•

The tie-up over Post Office's lease-purchase legislation (ENR June 17, p. 24) has been solved—so far unofficially—but final congressional action is now in sight. Arguments on just how much freedom the Administration would have in signing lease contracts for new public buildings is being ironed out. Sponsors of the legislation are taking great pains to make the final version acceptable, so as to avoid a veto, such as happened under Truman.

•

The White House is putting heavy pressure on congressmen in behalf of public housing. It won a first round when the House sent its conferees on the omnibus housing legislation to conference unhampered by instructions to fight for an outright ban on public housing. The House Rules Committee earlier had made this kind of demand, but retreated. Still, the House conferees in the second round might oppose public housing in conference, and might well come out with a reduction in the Senate plan for a four-year, 35,000-a-year program.

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FULL 1-YARD SHOVEL-CRANE

with *Speed-o-Matic*® power hydraulic control!

Now, for the first time in the heavy duty 1-yd class, you can buy a machine combining unsurpassed productive capacity and maneuverability with practical transportability. In fact, an LS-98 with Speed-o-Matic control gives you the greatest productive capacity of any shovel-crane conveniently transportable over most state highways.

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It's the industry's MOST ADVANCED shovel-crane

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Fingertip, Speed-o-Matic control is easy on the operator . . . cuts end-of-the-shift letdown . . . helps increase output up to 25%! Smooth, instant response eliminates jerk, jump or lag.

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Greater usable hp, more live weight The LS-98 advanced design insures more efficient application of engine hp . . . incorporates greater live weight and strength to utilize extra hp.

Interchangeable, shoe type clutches The exclusive, self-adjusting Speed-o-Matic clutches are internal-expanding, easily accessible, all are interchangeable. Shells are alloy cast iron.

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U.S. bidders are encouraged to go after NATO contracts

Commerce Department sets up information clearing house to put American firms in better position to participate

U. S. Contractors are getting a crack at bidding on upwards of $1.5 billion of military construction projects being built in Europe under the North Atlantic Treaty Organization (NATO).

In theory, bidding by U. S. firms on these big European jobs has been possible since the program got its start a couple of years ago. But in actual practice, there has been almost no information about construction of the installations available on this side of the Atlantic in time for American companies to do anything.

In all cases, an agency of the country in which the construction is being done has the actual administration of the job, including letting of contracts. In the past, the construction firms of that country had in effect a super-inside track just because it was extremely difficult for a foreigner to learn enough of the ins and outs in time to prepare a bid.

(The NATO bidding policy does not apply to U. S.-financed construction projects, as for example the nine airfields being built in France under the supervision of the Joint Construction Agency which was set up by the Defense Department last summer) (ENR June 11, 1953, p. 33).

Now, the U. S. Department of Commerce (and agencies in other governments that belong to NATO) are getting information—size, kind, location, bid opening dates, and the like—that make it possible for U. S. concerns to cut themselves in if they want to do so.

Bureau of Foreign Commerce will publish this information in its "Foreign Commerce Weekly" and act as a general clearing house for answering questions from U. S. concerns. The bureau's function, however, goes only this far; it is up to the bidder then to conduct his business with the government agency in Italy, France, or whichever country is involved. Within a few days the bureau is making available a manual of procedure as a guide for contractors.

• Competition is stiff—As yet it's not known just how much of this business U. S. firms may be able to get. In general though, those outfits which have operated overseas are getting at least an even break with other bidders. In addition, some officials believe that U. S. concerns may have an advantage in that they do have easy access to specialized construction equipment with which some foreign bidders aren't familiar.

Belief that there's considerable opportunity for successful American bidding on NATO construction projects was expressed by American officials in Paris this week.

Those officials told ENR's Paris correspondent that, although NATO jobs have been open to international bidding from the start, it was surprising how little interest has been shown by U. S. firms.

It was noted that the improved dollar balances of most European countries might now work to the advantage of U. S. bidders. (NATO's Infrastructure Committee, chairmaned by the American representative, Eugene Merrill, has to take into account the host country's dollar position, as well as technical criteria, in approving contract awards.)

• Variety of jobs—The construction program for the next couple of years includes the building of tactical airfields, petroleum storage tanks and distribution pipelines, telecommunications, radio navigational aids, training installations, and radar installations. They'll be located in Norway, Denmark, the United Kingdom, The Netherlands, Belgium, Luxembourg, France, Portugal, Italy, Greece and Turkey.

So far this year, the North Atlantic Council has authorized approximately $252 million of military construction programs for 1954, to provide additional airfields and petroleum fuel pipelines, communications network, radio aids to navigation and some naval facilities construction. Only a small part of this has been contracted for so far.

About one-half of the $252 million has been allocated to the construction of jet fuel pipelines and the completion of fuel storage facilities for airfields that NATO has been constructing during the last three years. These pipelines will feed some 120 tactical air bases that are either already built or about completed in Belgium, Denmark, France, Italy, Luxembourg, The Netherlands, Norway and occupied Germany.

More than 3,600 mi. of fuel pipelines are to be built this year to link the Central European network with seaports on both the English Channel and Mediterranean Seacoasts. The system then will be able to assure a constant flow of jet fuel to the NATO air forces across Allied Europe.

The 1954 construction program also calls for nearly $100 million to be spent in the construction of storage facilities and the expansion of the communications system at naval bases in the Mediterranean area.

Funds set for Army Engineer projects

House and Senate conferees this week agreed on compromise appropriations for Army civil functions in the year starting July 1.

Overall, the conference committee settled on total appropriations of $457 million for the civil works of the Corps of Engineers. Included in that total is $300 million for construction of flood control and navigation projects, plus $45 million for work on the Mississippi River and tributaries. Remedial work at Niagara Falls received $2 million.

The total is $8 million less than the President requested in his budget message, but it is $26 million more than the House voted. Similarly, the general construction fund of $300 million falls $8 million short of the budget estimate but tops the original House figure by nearly $22 million. The two houses already were in agreement on $2 million for Niagara and were close together on Mississippi River work, which ended up with $45 million plus.

Out of the project construction money, the conference report allows $2,603,000 for advance planning. For the significant item of general investigations, the conferees compromised on $2,907,500, slightly higher than the budget request but more than $500,000 below the amount voted by the Senate.

Cyprus to be major defense base: Military projects to start in year

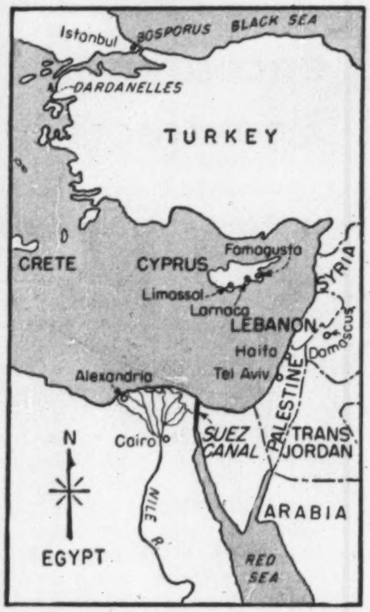
Cyprus, British protectorate in the eastern Mediterranean, is slated to take the place of the Suez Canal Zone as the strategic military base for Great Britain in the Middle East. Construction on air and naval bases, making up the strategic installation, is slated to begin within a year, and the role of American contractors in the program will be a major one.

Despite a cloudy political situation—involving Britain, the Greek government and local Cypriot Nationalists—NATO defense considerations still force the undertaking of a program of harbor improvements, airfields and other military installations to transform Cyprus into a second Suez. The British must leave the Suez Zone by 1957, and their hold on the Middle East can be maintained only through a base such as Cyprus would afford.

Survey teams of the British Ministry of Supply have reported the need of five major harbor improvement programs and one major air base to the British Naval Commission.

The harbors to be enlarged and get new piers and warehouse facilities: Famagust, Larnaca, Limassol, Kyrenia, and Paphos. The major air base will be built at Dekelia a short distance from Larnaca.

Major construction will take place at Larnaca in a $35-million program to convert the small port to one capable of handling a naval fleet. This work probably will be done by negotiation rather than contract bid, and probably will be financed by American funds channeled through Greece or Britain.



CYPRUS will replace Suez as military base.

Limassol, on Cyprus' south coast, also will be turned into a major naval base. A large salt lake at the port is to be converted into a submarine base.

Nicosia, capital of Cyprus, is to have its airport enlarged and improved to be one of the best in the Middle East and capable of handling the largest aircraft now in use.

Congress okays private Coosa River dams

Congress, indorsing the Administration's power policy statement of last August, has cleared legislation permitting private power development of the $100-million Coosa River project in Alabama.

Now awaiting the signature of the President, the bill suspends existing authorization for federal development of the Coosa, thereby clearing the way for Alabama Power Co., to seek a license for the five-dam, 375,000-kw hydroelectric project.

The measure sailed through both the House and Senate without a dissenting vote after receiving active support from all but one member of the Alabama congressional delegation. It represents the first clear-cut congressional approval of this portion of the Administration power policy.

The five dams outlined in the application would be located along the Coosa in northeast Alabama. When constructed they will supplement the power output of three company dams which have long operated on the lower stretch of the Coosa. The dams already in place are the Lay Dam, the Mitchell Dam and the Jordan Dam.

The proposed new development will cover a 225-mi stretch of the river from its confluence with the Tallapoosa all the way upstream to the Georgia line. The five new dams will have a gross power head of 204 feet, and an initial installed capacity of 239,500 kw.

Alabama Power Co. President L. M. Smith said last week that construction of the first of five dams on the Coosa would begin within a year, as required by the legislation.

The dams are to be located near Leesburg, Lock 2, Howell Shoals, Columbiana and Wetumpka and are to supply 250,000 kw, with provisions for an additional 125,000 kw. The Leesburgh dam probably will be built first, with a reservoir covering 35 sq mi, and backing water upriver to Rome, Ga.

Cement famine

Month-old strike may be ending in East

A cement famine along the eastern seaboard appeared to be approaching an end earlier this week as several locals of the United Cement, Lime and Gypsum Workers Union (AFL) gave preliminary approval to a settlement proposal which would end their month-long strike.

A pay increase was certain for the workers; the dispute was chiefly over retroactivity of the increase for those locals that didn't strike and over fringe benefits. Also at issue was a union shop, which the union has been seeking for several years.

Cement companies—most of the nation's largest producers are involved—and union alike were silent about details of the strike which has tied up production at plants in New York, Pennsylvania, Maine, Virginia and Florida. The companies have been trying to hold their long-cherished claim of individual bargaining, while the union has made no secret of its desire for industrywide negotiations. Federal and state mediators gave up a week ago after trying for several weeks to bring both sides closer to frank discussion of their differences.

The striking locals have pressed their demands for increases and fringe benefits—which varied from company to company—mindful of the good profit showing of the major cement producers last year.

For construction, increased labor costs in the cement industry mean, of course, the probability of rising cement prices. Already users in parts of the Midwest and South are faced with increases of 15 cents a barrel.

Pay for cement production workers has risen at the same rate as for the average of all other manufacturing workers since 1949: 28%. The price of cement, however, has increased only 18%, since 1949, as compared to 22% increases for other construction materials, as shown by ENR's Materials Price Index.

Contractors in the East were resigned to the probability of paying more for their cement. And, for many of them, an increase—the likely result of pay boosts for cement workers—was preferable to the $1-plus premium per barrel being paid now to bring cement from strike-free areas.

Delaware Valley spotlighted at ASCE spring convention

Unionization issue comes up at Atlantic City meeting—board agrees to hearing on S. C. engineering bid issue

Delaware Valley engineering problems—particularly ones related to water supply—were emphasized last week at the Atlantic City, N. J., convention of the American Society of Civil Engineers. Sponsored by the society's Philadelphia Section, the program included about 70 papers, more than 30 of them on technical subjects of the Philadelphia region.

On the professional side, the convention heard papers on questions facing today's young engineer—particularly unionization (see p. 28). And the society's Board of Direction took several steps toward solution of the bidding for professional services problem.

Meanwhile, William Roy Glidden was introduced as the official nominee for the ASCE presidency, Assistant Chief Engineer of the Virginia Department of Highways, Mr. Glidden would succeed Daniel V. Terrell, Dean of Engineering at the University of Kentucky, president during 1954.

In development of the convention's Delaware Valley, U. S. A., theme, the Delaware River in all its uses naturally got top billing. And of all the river's possible uses, its future as a water supply rated special attention, thanks to the very recent Supreme Court decision in the New York City diversion case (ENR June 10, p. 24).

This decision, which raises New York City's permissible future diversion of the interstate basin's waters from 440 to 800 mgd, had its first airing at these meetings. And here is how some of the principals involved appear from their remarks to regard it:

Karl R. Kennison, chief engineer of New York City's Board of Water Supply, explained the need for the water. New York is obviously now satisfied that its needs will be met until near 2000 A.D.

Samuel S. Baxter, water commissioner of Philadelphia, believes himself to be representative of the losers in the case. His department has definitely ruled out the upper Lehigh River (a Delaware tributary) as a future source. Thus, when quality considerations dictate and Philadelphia eventually goes to the upper Delaware for better water, he thinks it will be harmed by the present court allowance favorable to New York.

James H. Allen, executive secretary, of the Interstate Commission on the Delaware River Basin, is dismayed not by the court decision, but by the reason which compelled New York to go to the court for the decision: The Incodel Plan, which might have satisfied New York's needs by interstate compact, was "sabotaged" by Pennsylvania's decision against it, says Allen.

Francis S. Friel, consultant and coauthor of the Incodel Plan, had no part in the diversion case, but emphasizes that it does not eliminate the continuing need for an integrated, basin-wide water supply plan.

Kurt F. Pantzer, special master for the court in this case and dinner speaker at the convention, stressed the engineers' contribution to legal techniques developed in the case. He cited pre-trial conferences and all-written testimony with no cross-examination, as having considerably eased the legal procedures.

• Delaware navigation—The Delaware's other great function, as an inland waterway in its estuary portion, was discussd with allusions to the pros and cons of the 40-ft channel proposal now under consideration. This $90-million improvement of a channel now mostly 25 ft deep was described as a means of opening up 60 more miles of industrial waterfront to ocean-draft vessels. Of immediate concern is the proposed direct shipment of Venezuelan iron ore to U. S. Steel's Fairless Works, on the Delaware upstream from Philadelphia.

Describing hydraulics of the Delaware estuary, C. F. Wicker of the Army district, said that contrary to normally assumed conditions, there is no salt wedge, but rather, complete mixing of salt and fresh water in varying proportions along the lower river. His reasons: preponderance of tidal flow over river discharge and the mixing effect of channel shape.

(Continued on page 24)

Unionism: one engineer's story

The controversial subject of unionization for civil engineers took a peculiarly personal twist for engineers attending ASCE's Atlantic City meeting last week.

The twist occurred during a meeting of the Committee on Conditions of Practice, where Charles W. Yoder, Milwaukee consulting engineer, took occasion to introduce L. Stewart McCoy, project engineer for Terry & Wright, Inc., contractor on a section of the Ohio Turnpike. McCoy has been a center of a continuing battle between the Operating Engineers union and contractors on the turnpike, over unionization of younger professional and sub-professional engineering employes (ENR Mar. 18, p. 23).

Before introducing McCoy, Mr. Yoder outlined four conditions that are favorable to the establishment of collective bargaining: union pressure; economic pressure; large engineering organizations or companies; limited opportunities for advancement.

He commented that union pressure "will be a continuing problem" for those who believe unionism is not compatible with professionalism. "The most important device for forestalling unionism is satisfactory employment conditions," Yoder added.

• Tells experiences—Mr. McCoy reviewed his experiences when the International Union of Operating Engineers forced the field layout men on his job to join their organization, asserting that this is a first step in a campaign to get IUOE membership into the offices of designing engineers.

With a control of contractor's field parties (the most vulnerable, because the union can strike the contractor's job), IUOE would move in on an owner's field parties, and eventually call "unfair" a job built from plans made by a non-union office. Here, again, pressure could be brought on contractors by warning them not to bid on such plans, McCoy theorized.

"There are second rate consulting firms which would welcome the opportunity to leap onto the band wagon and become one of the few approved firms eligible to design work that will be built without labor trouble," Mr. McCoy said.

In conclusion he echoed the recommendation of many engineers that a separate collective-bargaining unit, for professionals, be formed and recognized by NLRB. This, he said, is consistent with ASCE policy.

"Such a course is better than standing by idly until we find ourselves under the control of labor union leaders whose objectives are power and self-interest," McCoy warned.

E. L. Chandler, assistant secretary of ASCE, noted that the society is prohibited by law from sponsoring a union, but that it may furnish advice in connection with units at the local level.

. . . ASCE spring convention

• **Sees no Seaway threat**—While deepening of the upper Delaware remains in the hands of Congress and the planners, the Port of Philadelphia is keeping pace with the region's dynamics. For handling increased iron ore shipments from overseas the port now has two special facilities, both of which were described for those in attendance at Atlantic City. The newest one, built by the Pennsylvania Railroad at a cost of $10 million, also was discussed from the economic standpoint. J. B. Carey, coal freight agent for the Pennsylvania, said that this new construction is an expression of his company's belief that the St. Lawrence Seaway will not make North Atlantic seaports obsolete.

• **Highway problems**—Inside and outside confines of the valley, the area's regional planners and highway engineers are grappling with the traffic problem. Inside, the great need is for an expressway to run along the Delaware's west shore from Fairless Works to Wilmington, Del., according to E. N. Bacon, executive director of Philadelphia's City Planning Commission. Outside the valley, the general area's most pressing highway need will be met shortly with opening of the Garden State Parkway, fast route to New Jersey's seashore resorts.

Unusual in several of its aspects, the Garden State Parkway is perhaps the only toll highway to be actually an urban expressway with stable year-round traffic at one end, but largely a summertime route through most of its length. This factor plus the fact that most of its users will be New Jersey taxpayers—most traffic will have origin and destination within the state—has led to determination of the toll collection system. Access will not be rigidly controlled; barrier-type toll collection stations will be used.

• **Sand drains appraised**—Although Garden State Parkway was the important piece of current construction discussed at highway sessions, it shared the spotlight with a postscript of New Jersey Turnpike work. One highway session, held in joint sponsorship with the soil mechanics and foundations division, appraised the effectiveness of sand drains on the older toll road. Installed mostly in 1950 to obtain consolidation of unstable roadway subsoils, the New Jersey Turnpike sand drains added up to a greater footage than all drains placed throughout the United States before that time. The total was 4,000,000 ft, much of it applied to the consolidation of unstable deposits 50 to 100 ft deep, according to O. J. Porter, of the firm of Porter, Urquart and Beavin, Newark, N. J. In three years of turnpike operation about 5% of the sand-drained roadway has needed patching, the patches (built-up lenses of asphaltic concrete) being for the most part 1 to 3 in. in their maximum thickness. Most of the subsidences have occurred at places where insufficient time had been allowed for the effects of surcharge. Co-author with Mr. Porter was Charles M. Noble, chief engineer of the New Jersey Turnpike, who expressed his satisfaction that heavy embankments up to 50 ft or more can be built economically on relatively impervious soft mud formations.

Sand drain experience in the New York area was summarized by John M. Kyle, chief engineer, and Martin S. Kapp, soil engineer, both of the Port of New York Authority. Describing five projects where the drains were considered (they were not used on one of the jobs), the authors termed them a useful tool for the foundation engineer's kit. Materials normally suitable for sand draining can be consolidated cheaper by simple surcharging if the deposits are less than 20 ft deep and ample time is available. Furthermore, it probably will be best to remove and replace the material if the deposit is less than 15 ft deep.

ASCE board to hold bid hearing

The Board of Direction, although handling no more than the normal four-month accumulation of problems, transacted several items of business of broad interest. Foremost among these were two actions relating to the question of competitive bidding for engineer services:

• The board approved a recommendation of its committee on professional conduct that all ASCE members who participated "in the bidding procedures covering procurement of consulting engineering services by the Highway Department of South Carolina" be given an opportunity to be heard by the board "as to why such bidding by engineers does not violate the society's code of ethics." The board set a date, the latter part of August, for a meeting in New York to hear these explanations and act upon them.

• The board, after receiving a progress report from its committee on professional conduct covering an investigation of alleged competitive bidding practices in connection with work on the Ohio Turnpike, instructed the committee to continue its study.

Also, as an outgrowth of these recent bidding situations, the board instructed another committee, that on professional practice, to continue attempts to develop a statement that would define the dividing line between the types of competition for engineering services that are permissible under the code of ethics and those which are considered improper and unethical.

The board also asked this committee to institute a similar study looking toward a definition of what constitutes admissible advertising for engineers to use in offering their services. In this same connection, the board chose the subject, "What kind of advertising should be considered derogatory to the engineering profession?" for the papers to be submitted by junior and student members for the 1955 Daniel Mead Prizes.

• **Protests to Washington**—The board took note of several activities of the federal government—both legislative and administrative—against which it asked the president of ASCE to direct letters of protest urging that:

• Congress delay enactment of Upper Colorado River legislation until the Moreell Water Resources Committee of the Hoover Commission has rendered its report, so that the overall policy recommendations of this committee can be taken into account on such a large interstate development.

• Congress not enact legislation imposing compulsory social security coverage on self-employed engineers, but that the requirements in this respect be made voluntary.

• Bureau of Reclamation remove itself from competition with engineers in private practice on the design of facilities for Australia's Snowy Mountain Hydro Electric Authority, if it has not already done so.

In the same area of federal activities the board went on record to make a request of President Eisenhower that every consideration be given to the appointment of one or more engineers to the Advisory Board of the St. Lawrence Seaway Development Corp.

• **Honorary memberships**—The board elected three engineers to honorary membership in the society. They are: Robert J. Cummins, Houston, Texas; Shortridge Hardesty, New York City, and Edward P. Lupfer, Buffalo, N. Y. They will be installed at the annual meeting of the society in New York Oct. 18-23.

Future meetings of the society were set for San Diego, Calif., Feb. 7-11, 1955 and St. Louis, Mo., June 13-17, 1955.

AIA evaluates changing requirements for design of hospitals and schools

86th annual convention takes critical look at contemporary architecture; government influences on profession scored

Frederick S. Merritt
Associate Editor

Need for greater flexibility in the design of hospitals and schools to keep pace with new concepts of medical service and public school education was emphasized in leading panel discussions at the 86th annual convention of the American Institute of Architects in Boston last week.

More than 2,100 architects were on hand for what proved to be a penetrating evaluation of the many forces shaping today's architecture. And, the architects heard some uncomplimentary comments concerning contemporary work.

In a closely contested election, Clair W. Ditchy of Detroit was re-elected president and Leon Chatelain, Jr., of Washington, D. C., was chosen treasurer. Earl T. Heitschmidt of Los Angeles was elected first vice-president; Howard Eichenbaum, Little Rock, Ark., second vice-president, and George Bain Cummings, Binghamton, N. Y., secretary.

• **Architects honored**—Six honor awards and 32 awards of merit were voted by the jury of awards, thus honoring more members for outstanding design this year than at any previous convention. Nearly one-third of the awards were for school building design.

Honor awards went to Curtis & Davis, New Orleans, for the Thomy Lafon School in New Orleans; Perkins & Will, Chicago, and Caudhill, Rowlett, Scott & Associates, Bryon, Texas, for the Norman High School, Norman Okla.; March, Smith & Powell, Los Angeles for Santa Monica City College, Calif.; Richard J. and Dion Neutra for the Moore residence, Ojai, Calif.; Vincent G. Kling, Philadelphia for the Lankenau Hospital in Philadelphia, and John P. Wiltshire and J. Herschel Fisher, Dallas, for the Fort Brown Memorial Civic Center, Brownsville, Texas.

• **Hospital trends**—A panel with Marshall Shaffer, chief architect of the U. S. Public Health Service, as moderator delved into the intricacies of modern hospital design.

Hospital management's viewpoint was ably presented by Dr. Albert W. Snoke, director of Grace, New Haven, Community Hospital, New Haven, Conn. He pointed to the need for flexible designs tied in with function, for making maximum use of beds, for better heat and sound control, for parking facilities, for interior walls not easily defaced, and for more research on planning and building materials.

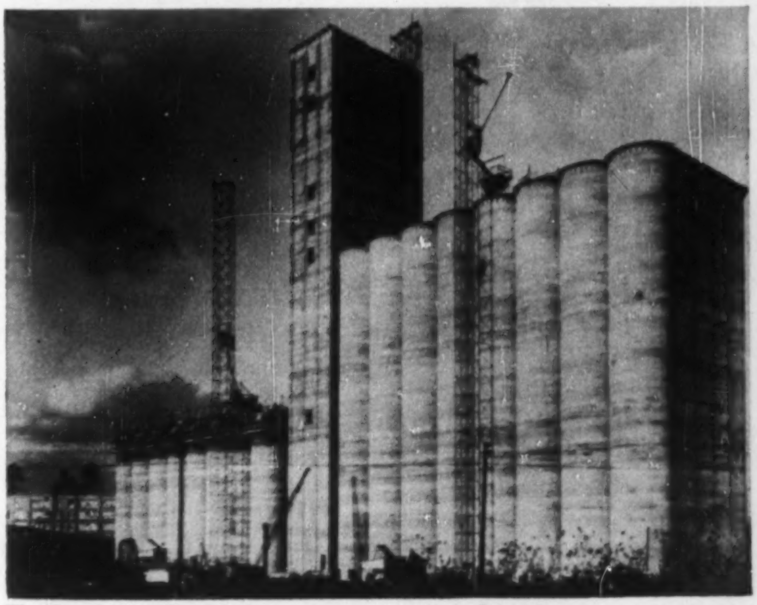
Dr. Snoke estimated that 70% of the cost of hospital operation goes for personnel. So there is also a great need for labor-saving designs, he said. He also believes that regionalization—a central large hospital surrounded by several smaller hospitals cooperating through mass purchasing and sharing of central laundry facilities—can cut costs.

Hospitals today are faced with a different patient load from that encountered in the past, Dr. Snoke said. More aged persons must be cared for. More surgery, more complex than ever, is required, necessitating more operating rooms per bed. Patients stay in hospital a shorter time than heretofore and the greater turnover strains administrative facilities, requiring more auxiliary facilities and more personnel.

Vincent G. Kling, Philadelphia architect, called attention to the effect on hospital design of prepaid medical programs which make it economical for a hospital to call for as many semi-private rooms as possible. He also pointed to a trend to use of a large percentage of space for out-patient-diagnostic treatment purposes as an outgrowth of health-maintenance programs. Some recently built hospitals have as little as 17% of the total floor area devoted to bedrooms, he said.

Health-maintenance programs, Mr. Kling continued, make necessary an auditorium in the hospital for public gatherings where health lectures may be given and films on health maintenance shown. Also smaller areas are needed for medical administrative and community groups. Doctor's offices should be provided for the majority of the staff in the hospital proper and should be related to the diagnostic area, for easy referral of patients to specialists. Cost of this space is self-liquidating because it produces income, he said.

(Continued on page 26)



Tall grain elevator uses interstice bins too

Dedicated this month in St. Louis, Mo., one of the tallest ten grain elevators in the U. S. is designed to contain grain in 36 interstice bins between its standard cylindrical storage bins. With part of its 279-ft headhouse, its 48 cylindrical bins, 20 ft in dia and 154 ft high, and the interstice bins, the elevator has a 2,500,000-bu. capacity. Concrete was placed in slip forms at a rate of 20 cu yd per hour around the clock, the forms sometimes rising more than 5 ft in an 8-hr shift, to erect the $3-million elevator. The 224 screw jacks used for raising slip forms were incorporated as reinforcing. Fruin-Colnon, St. Louis, built the elevator for the Elam Grain Co., and Jones-Hettelsater Co., St. Louis, were the design engineers.

. . . AIA evaluates requirements

• Hospital of the future – In Mr. Kling's estimation, the hospital of tomorrow will have three types of in-patient facilities. "The first," he believes, "will be similar to a hotel where admissions and patients undergoing routine survey can have attractive bedrooms without paying the high tariff associated with acute nursing areas. The second area might be what we know as the nursing unit, typical of most of our hospitals today. That will continue to serve the acutely ill. The third area, which will need a much less intensive nursing service, would be for the chronically ill and geriatric patient."

Richard J. Adams of Sherlock, Smith & Adams, Montgomery, Ala., mentioned the ten hospitals in the current construction program of the United Mine Workers as an example of the design trend. Medical men, architects, and the general contractor cooperated to plan this coordinated group of hospitals to eliminate excessive personnel and cut down on excessive duties of personnel. Operating costs will be further cut by mass purchasing, mass pharmaceutical manufacture, and sharing of warehousing and central laundry facilities.

• School design trends–John W. McLeod, chairman of the AIA committee on school buildings, served as moderator for a panel that attempted to determine the direction in which school design is moving.

Presenting the educator's viewpoint, Charles D. Gibson, president of the National Council on Schoolhouse Construction, said that sites are becoming larger, school plants are being decentralized and one-story buildings are on the increase.

Classrooms are getting larger with secondary-school rooms nearing the 1,000-sq ft area established in elementary schools. Dimensions of classrooms generally range between 28 and 32 ft and the shape is approximately square. Movable seating is universally accepted, he said, and movable storage units and walls are replacing fixed items. There is greater need for flexibility in use of space. Visual thermal and auditory environments in instructional areas are being improved for comfort and efficiency of occupants. And maximum educational use is being made of all building areas including corridors and outdoor classrooms.

"A poor school district cannot afford to build cheap buildings," Mr. Gibson said. "The only place money can come from to pay the constant and excessive maintenance costs of cheap school buildings is out of the funds intended for buying a good instructional program for children." He urged the AIA to go on the offensive in the battle for better school design.

Another member of the panel, Stanley Sharp of Ketchum, Sharp & Gina, New York City, claimed that advancement toward better schools could be achieved only when the board of education, the architect and the citizens themselves work together. Each change in curriculum, each advancement in teaching affects design, he said, requiring more space, greater flexibility, more and better equipment –all despite rising construction costs. To the previous discussion Samuel E. Homsey of Wilmington, Del., a third member of the panel, added that more thought should be given to cutting operating costs. He noted the need for high-caliber maintenance men.

• Governmental influence–Warnings of the danger of stagnant and poor architecture resulting from the growth of governmental influence were given to the AIA by Michael Waterhouse, past president of the Royal Institute of British Architects, London, who described the trend in Britain. Of 15,000 qualified architects in that country, about 65% are in some form of governmental service compared with 50% in 1949 and 25% in 1939. In 1953 80% of all building was government sponsored.

"Design in large governmental offices tends to become canalized and stereotyped along certain lines," Mr. Waterhouse said, "and the vast majority of ardent young men who have sunk their identities in these big organizations must suffer from stifling of their hopes of being able to give personal expression to design. At the same time absorption by the government of the bulk of the building industry's output to the exclusion of the private building owner has denied to him and his architect many opportunities for design."

The impact of government in architecture in the U. S. already is pervasive, Miles L. Colean of Washington, D. C., said. He called attention to restrictions imposed by local regulations such as building, zoning and sanitary codes, the large number of architects now employed by government and the effects of governmental intrusion into building finance.

"Perhaps the most important thing to keep in mind when you deal with government," Mr. Colean pointed out, "is that you are not dealing with any mystical entity but with men usually quite ordinary–well disposed men clothed with authority to do a job; desirous of doing their job with a minimum of effort, friction, and exposure to criticism; and usually determined above all else to play it safe."

In the interests of better architecture, Mr. Colean urged the AIA "to develop a high and everlasting nuisance value" and to be constantly alert to influence government so that its inescapable impacts may be as benign as possible.

• Architectural philosophy–A panel with John F. Harbeson of Philadelphia as moderator took a critical look at contemporary architecture and concluded that most of it is bad.

"Architecture has become too much of a business–a big business," Eero Saarinen of Bloomfield Hills, Mich., complained. "Architecture has also become something looked upon as a fashion which must change from month to month. There is not enough awareness and dedication to principles and their continuity."

Changing spiritual, social, economic and technical factors are all shaping our architecture, Jose Luis Sert, Dean of Harvard's School of Architecture, asserted. He said that the good average architecture worked out in the past is what is most needed today–an architecture of good proportions, serene and dignified where no house tries to outdo the neighbor's where the whole street, square, neighborhood or town is balanced, harmonious and beautiful.

Ironworkers tie up area as employers balk big raise

Announcing failure of their demands for a 40-cent-an-hour pay raise, some 750 ironworkers in the Cincinnati area walked off their jobs late last week, tying up an estimated $42 million of construction work.

Most important job in the area, immediately affected by the walkout, was Section "C" of the Cincinnati floodwall, where lack of setters for reinforced concrete bars brought work to a halt. Other jobs in the area–which comprises parts of Kentucky, Indiana, and Ohio–include Cincinnati's $25-million Millcreek sewage works.

The ironworkers' contract with the Allied Construction Industry of Cincinnati expired June 1. Negotiations on the union's wage demands have been continuing since that time.

Meanwhile, to the north of the affected area, some 1,300 union carpenters returned to work at the Atomic Energy Commission's huge Pike County plant, after agreeing to await results of a study of their demands by an AEC labor panel. The carpenters have lowered their original wage demands to 12½ cents an hour.

ASTM hears vast, complex program, marks 57th annual meet of organization

Chicago conference combines 100 technical talks and 500 committee meetings—Mochel named new ASTM president

J. R. Carr
Associate Editor

Researchers, materials engineers, specifications writers and representatives of industry could find an answer to almost any question last week. Nearly 2,500 of them gathered in Chicago at the week-long 57th annual meeting of the American Society for Testing Materials.

There were over 100 technical papers and over 500 committee and subcommittee meetings, starting early and running late. And there were differences of opinion on how certain materials should be tested; how standards should be tightened up to protect the consumer, or modified to give the producer more leeway in making a fair profit without sacrificing quality.

But on one point there was universal agreement: air conditioning, like that in the Sherman and Morrison—headquarters hotels for the convention—is a life-saver for any hot-weather meeting of this kind.

• Half century of testing—ASTM has been standardizing specifications and methods of testing materials for more than half a century. It boasts a membership of over 10,000 and more than 2,000 standard specifications.

That this five-day meeting was big and important was mirrored in the printed program, which totaled 67 pages. It took 32 pages to list the speakers, subjects and committee meetings in the 36 separate sessions held at the two hotels.

Twelve pages were needed to list the time and place of committee meetings alone. Each of the 70 regular committees had several subcommittees, and a number of the subcommittees had task forces.

The six symposiums, and technical papers at other sessions, dealt with many subjects, ranging from coal handling to creep properties of zirconium. A number of the papers and discussions dealt with the basic materials of construction.

• Specification trends—The controversial question of the meaning of standards was explored at one symposium by a four-man panel representing ASTM, Department of Defense, producers and consumers.

Norman L. Mochel, ASTM's new chief.

R. J. Painter, ASTM's executive secretary, called for greater consumer participation in determining standards.

Capt. C. R. Watts, USN, staff director of standardization, Office of the Assistant Secretary of Defense, reported on the department's efforts to standardize standards and specifications of the three branches of the armed forces. Objectives, he said, are to improve the efficiency and effectiveness of logistic support to the fighting forces while conserving resources.

"Basic concept of this standardization," said Watts, "is coordination into a single specification of the current specifications being used by the Army, Navy and Air Force for similar items." Target date for completion of the program is July 1 of next year.

• Soils investigation—Nine papers, of a highly technical nature, dealt with the permeability of soils, at three different sessions.

W. O. Smith, of the U. S. Geological Survey, made the point that permeability tests should be carried out with exactly the same type of water as is going to flow through the soil in actual practice. This rather simple precaution is important, he said, since different types of water will affect soils in different ways. A slight action of "base exchange" in the soils caused by the water might seriously affect the permeability results.

Two papers, by four authors, dealt with piling. One—by H. G. Mason and J. A. Bishop, Civil Engineering Research Laboratory—dealt with the theory; the other, by L. A. Palmer and P. P. Brown, Bureau of Yards and Docks, described an actual field test of pressures and stresses set up in piling due to lateral loads. D. M. Burmeister, Columbia University, spoke briefly on the necessity of a "judgment factor" in using soil tests for design. This prompted the committee on soils (D-18) to review both its general activities and the significance of soil tests in general.

• Concrete pipe review—Committee C-13 on concrete pipe reported that it is writing a specification on low-head irrigation pipe. It will review the present methods of making absorption tests on concrete pipe, in order to get a more uniform and reliable test. The committee also plans to enlarge the scope of its activities to include tongue-and-groove drain pipe in the specifications for irrigation pipe.

• Building symposium—With the U. S. headed for over 1,100,000 private housing starts again this year (ENR June 17, p 21) considerable interest centered on a symposium that was devoted to testing of building construction.

Lyman D. Wood, U. S. Forest Products Laboratory, praised so-called "specification codes" which often contain a provision for acceptance of alternative methods of construction on proof of their structural adequacy. This is essentially a performance requirement. "Where intelligently and honestly applied," he said, "it has permitted much that is new in building without jeopardizing public health and safety."

• Glue vs. nails—Going a bit deeper into the practical field of building construction, a paper by R. F. Luxford and Otto C. Heyer, both of the U.S. Forest Laboratory, compared the properties of glued and nailed roof trusses for house construction—based on tests of 17-ft span, W-type trusses.

Glued trusses—because of their rigid joints—are much stiffer than nailed trusses. Yet they fail without warning, whereas nailed trusses will deflect considerably when approaching failure, with little increase in load.

Glued trusses deflect less at design loads than do nailed trusses. But they show some loss in stiffness and considerable loss in maximum load from exposure to low and high humidities. No loss in maximum load carrying capacity was evidenced in nailed trusses under low or high humidity.

(Continued on page 28)

. . . ASTM's 57th annual session

• Air entrainment—In the final analysis, the job performance of an air-entraining admixture is based on the direct measurement of "total air content" and the other classic field criteria: slump and strength.

This was the conclusion of C. E. Wuerpel, technical director, Marquette Cement Manufacturing Co., in a paper on the several factors influencing the optimum presence of entrained air.

Many factors govern the volume of entrained air in concrete, he said. Those tending to increase it include: an increase in the water-cement ratio, an increase in mixing time up to 2 min, an increase in slump, or a decrease in temperature of the mix.

Increasing the fineness of the cement, or the cement content, will decrease the volume of entrained air, he commented. Cement replacements such as fly-ash or other exceedingly fine powders will reduce the air content. Changes in grading of sand also may alter the volume of air, one way or the other. As to vibration, Mr. Wuerpel pointed out that it causes air bubbles to rise to the surface and be expelled. Consequently, vibration should be applied with just enough intensity and duration to effect consolidation.

Results of laboratory tests on concrete made with cement blends were presented by F. O. and J. A. Anderegg, of the Anderegg Laboratories. Portland cement was blended with 10% of natural cement, 20% of hydraulic lime, and 30% of fly-ash, in concrete mixes of 1:2½:3½. These mixes had cement factors of 4, 6 and 8 bags per cubic yard. In general, the blending had little effect on the movement of moisture through the concrete mixes; the greatest increase in movement being for the blend containing fly-ash.

• Other reports—Committee C-1 on cement reported that two of its newest subcommittees are studying questions related to slag cement and the "false set" of cements. Other subcommittees are conducting test programs on "flame photometry"—a short method for determining heat of hydration of cement—the effect of mechanical mixing on standard mortars, the bleeding of cement mortar, and sulfate resistance of cements.

Committee D-7 on wood will conduct a two-year, $160,000 research on testing full length poles. Over 600 full-sized poles will be tested, and 15,000 small clear specimens cut from them.

Subcommittee 8 of Committee E-5 on fire tests of materials will draft a new method for establishing the fire hazards of roof coverings. And Subcommittee 2 of Commitee C-4 on clay pipe is studying proposed revisions in all of the clay pipe specifications. Its objective is to amend crushing strengths, based upon sound ceramic engineering data.

• Officers and awards—Norman L. Mochel, manager of metallurgical engineering, Westinghouse Electric Corp., Philadelphia, was elected president of ASTM, succeeding L. C. Beard, Jr., Socony-Vacuum Oil Co. of New York. C. H. Fellows, director of the engineering laboratory and research department, the Detroit Edison Co., moved up from second to first vice-president. R. A. Schatzel, vice-president and director of engineering, Rome Cable Corp., Rome, N. Y., was elected second vice-president.

Awards of merit were presented to 11 men for rendering distiguished service to the society along technical lines, and special awards were given to six others.

Toll project reactivated by Va., N. C. authorities

Plans for the proposed 54-mi toll road between Virginia Beach, Va., and Nags Head, N. C., paralleling the Atlantic shoreline, have been revived by the Coastal Turnpike Authority of Virginia Beach and its North Carolina counterpart, the Carolina-Virginia Turnpike Authority.

The project, first proposed in 1949, was all ready to go in 1952 but there were no takers for the bonds (ENR June 19, 1952, p. 24). There also was a legal hitch. The North Carolina enabling legislation was declared unconstitutional because of technical errors and had to be re-written for re-enactment by the 1953 legislature.

The two authorities have now taken these steps to re-activate the project.

- Employed De Leuw, Cather and Co., of Chicago, Ill., to recheck traffic surveys made in 1950.
- Retained William F. Freeman Engineers and Architects, Inc., of High Point, N. C., on a contingency basis, to handle the engineering work.
- Retained Reed, Hoyt and Walker of New York City, on a contingency basis, as bond attorneys.

The two groups plan to meet next on July 15 at Virginia Beach.

In 1950, the 54-mi turnpike (34 mi in N. C.) was estimated to cost $2,500,000.

The Freeman firm was instructed "to proceed as early as possible" to bring the 1950 plans up to date.

Skyscraper facade erected in 10 hr, beating estimate

In a spectacular demonstration of the ease and speed with which prefabricated metal panels can enclose buildings, General Bronze Corp., covered the steel frame of a 22-story office building at Park Ave. and E. 57th St., in New York City, with aluminum panels in only ten hours. This is four hours less than the general contractor and owner, the Tishman Realty & Construction Co., estimated would be required, as mentioned in the editorial on p. 116.

Similar to the panels used for a skyscraper at 99 Park Ave., last year (ENR Aug. 13, 1953, p. 43), the new curtain-wall units are two stories high (23 ft), 4½ ft wide and ⅛-in. thick. They weigh about 200 lb apiece. Each panel contains two vertically pivoted, 6-ft-high windows. Latest estimate of cost of the facade in place is about $6.50 per sq ft, roughly 10% less than for the panels installed last year.

Pictures showing how the enclosure was accomplished will be published in ENR next week.

Jobs in the news

PIPELINES—Construction of a $170-million "national defense" pipeline from Beaumont, Tex., to Newark, N. J., will get under way in about a month. To be built by the American Pipe Line Corp., New York, with Engineers, Ltd., N. Y., as the designers, the 1,425-mi, 24- and 26-in. line—with 485 mi of feeder line—will have an ultimate capacity of 500,000 barrels daily for national emergencies. The line could serve 157 military installations and 85% of national defense production facilities located in the Midwest and East Coast areas.

The Federal Power Commission has approved construction by the Pacific Northwest Pipeline Co., Houston, Tex., of another huge pipeline project—a 1,466-mi natural gas pipeline from the San Juan Basin, in New Mexico, through the Northwest to Bellingham, Wash. To cost $187 million ultimately, the line will serve Colorado, Utah, Wyoming, Idaho, Oregon, and Washington. FPC chose PNP's application over a plan of the West Coast Transmission Co., which would have taken its natural gas from Canada.

SKYSCRAPER — Downtown Chicago's Loop area will get its first large new office building in over 20 years when the Harris Trust and Savings Bank builds a 20-story, 3-basement addition to its present building of the same height. Construction will get under way early next year on the air conditioned building designed by Skidmore, Owings & Merrill, New York.

MICHIGAN
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Watch a MICHIGAN Tractor Shovel at work—with particular attention to bucket action—and you'll *see* how a MICHIGAN* will *handle bigger loads, move more yardage*—faster, at considerably lower cost.

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4. **Clark Planetary Axle**—relieves torque load on shafts and gears, prolongs machine life
5. **Power Steering**—much easier handling, lessens driver fatigue
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Six models: capacities from 15 cubic feet to 2¼ cubic yards. Facts about the MICHIGAN Tractor Shovel are important—and interesting. The MICHIGAN Fact Folio contains specifications and action photos. The coupon gets it for you.

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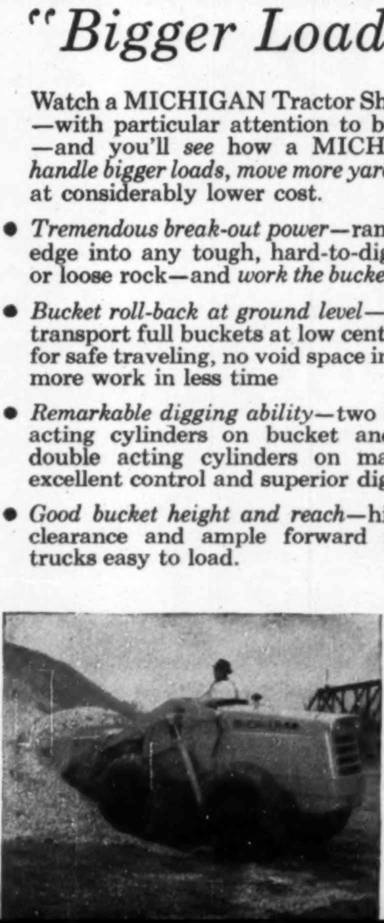

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Pictures of the month . . . *by LeTourneau-Westinghouse*

Paving clean-up at 25 mph — Shown above is what D. W. Winkelman Co officials call the cheapest method they know of for cleaning up the rocks and other debris which accumulate after paving and shoulder-grading. Tool used is a 7-yd D Tournapull. After boulders and smaller rock have been windrowed by a grader, the "D" comes along at 20 to 25 mph. Scraper blade is lowered to "float" on the roadway. Each pass self-loads 100 to 150 ft of windrow. Daily output, estimates Winkelman's super, is 3 times that of a front-end loader and grader. Photo was taken on Winkelman's $7,278,000 New York Thruway job near Syracuse.

Replaces 3 crawlers — One Tournatractor handles clean-up work formerly assigned to three 144 hp crawler-tractors at this open-pit iron mine. Unit serves 3 to 5 draglines and shovels, helping to keep ore production at 15,000 tons daily for owner. Material handled ranges from rock and limonite ore (weighing over 4,100 lbs per cu yd) to sand, clay, and gumbo. Big, rubber-tired machine also blades and cleans haul roads . . . dozes overburden . . . cuts ramps to loading areas . . . clears dragline roadway . . . hauls equipment . . . pushes trucks through soft going. After 3,000 hours work in abrasive materials, 21:00 x 25 tires still retain a substantial part of their original tread (see photo). Says Mine Superintendent, "Tournatractor can't be beat in open-pit mining."

(Advertisement)

. . . with performance reports from around the world

Cut repair, fuel costs — Despite loading of heavy, abrasive stone and rock, 2 LeTourneau-Westinghouse Rear-Dumps have eliminated nearly all hauler maintenance at Reno Construction Co's limestone quarry, Overland Park, Kansas. Company officials report these rugged Rear-Dumps have far fewer breakdowns than dump trucks they replaced. Also, they claim lower fuel costs and higher hourly output. Moving overburden 725 ft to dump, each machine hauls 7½ yds of cap rock in 4 minutes. Moving screened rock 800′ to hopper, each handles 600 tons every 10 hour shift.

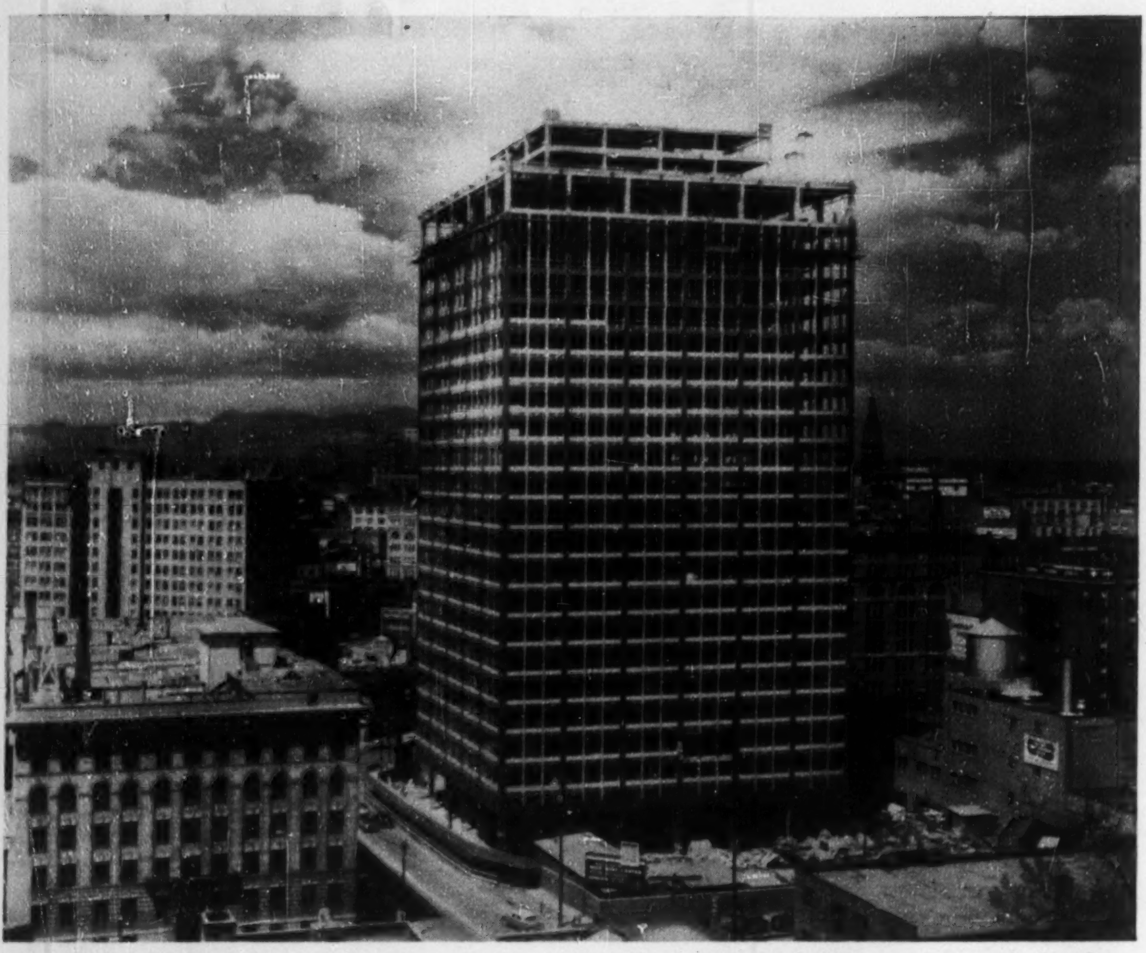
Self-loads 9 yds — Traveling down 18% grade, C Tournapulls self-load 8½ to 9 bank yds of sandy loam overburden in 45 to 50 sec. Output for 3 "C's" on 3500 ft cycles is 288 to 324 bank yds per 50-min hour. Owners, Elgin-Butler Brick Co, Austin, Tex, also use Tournapulls for mining clay. Here each "C" is push-loaded with 12 yds; 3 "C's" move 432 yds hourly on 2100 ft cycles.

Better roads to Cape Cod — Two more lanes for Massachusetts' heavily-traveled Mid-Cape Highway are being built through hills of ocean-deposited sand and rock. This C Tournapull is one of 2 speeding dirtmoving for Campanella & Cardi Construction Co, Hills Grove, Rhode Island. Top speed of these units is 35 mph.

Mountain climber — 16,000 ft up, rain, snow and wind tested the stamina of men and machines as 3 C Tournapulls and a Tournatractor built a dam in the Peruvian Andes. Rubber-tired units drove 143 miles to job on treacherous, 11½′ mountain roads.

Handles 3 scattered assignments —One Tournatractor for Stewart & Nuss Inc, Fresno, California, regularly handles all dozing requirements of 3 plants (aggregate, asphalt, and sand) scattered in a 6-mile area. Getting 3 yds of crushed rock or sand per pass, it feeds hopper with 47 loads (141 cu yds, about 200 tons) hourly. Says Foreman John Hart, "In maintaining haul roads, Tournatractor does in 30 minutes what it would take a crawler a half-day to do." For information on any of these tools, write LeTourneau-Westinghouse Company, Peoria, Illinois.

Tournapull—Trademark Reg. U.S. Pat. Off. Tournatractor—Trademark Pic-682-G



MILE HIGH CENTER in Denver will be dominated by a 23-story office building (center). Soon a four-story bank and two-story transportation building with cylindrical thin-shell roof will be added in the foreground. Exterior design of the first building introduces a . . .

Building facade with functional meaning

In new Denver skyscraper, thin sandwich-wall panels outline both the structural frame and the air conditioning system, marking the difference by dark and light colors

Air conditioning always is an important consideration in determining the character of the outer walls of a building. But never before has it dictated the nature of a building exterior to the extent it has for the 23-story office building in Denver's Mile High Center.

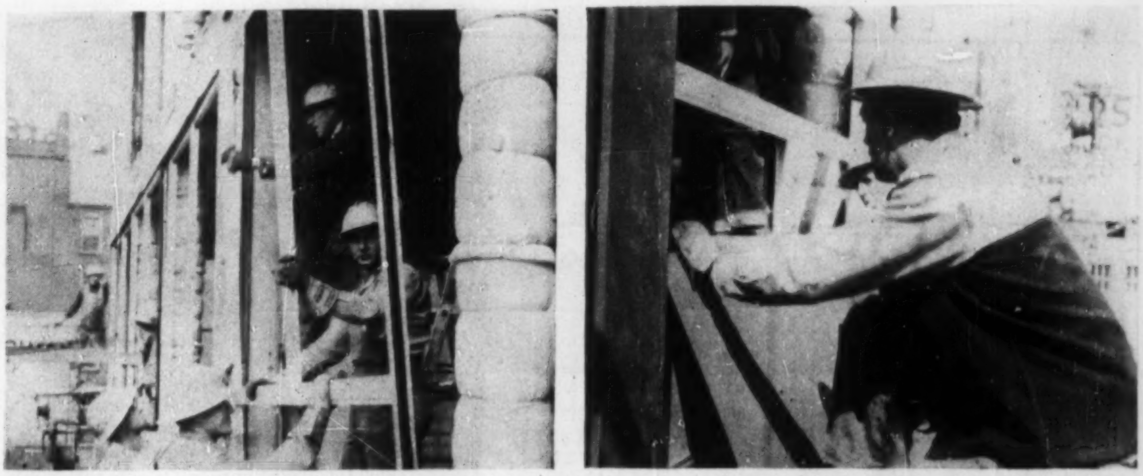
As might be expected, air conditioning made necessary a well-insulated enclosure for this skyscraper. In addition, the architects decided to allow the air-conditioning system to determine the appearance of the facade. To carry out this idea, they followed the outline of perimetrical air-conditioning units and risers with light-colored opaque bands, and employed dark-colored bands to delineate the structural steel framing of the building. Between these bands are glass windows.

The light-colored bands are insulated sandwich panels only 1¾ in. thick. No backup was required for additional fire resistance. The dark panels, of course, are backed up by the concrete fire protection of the steel frame.

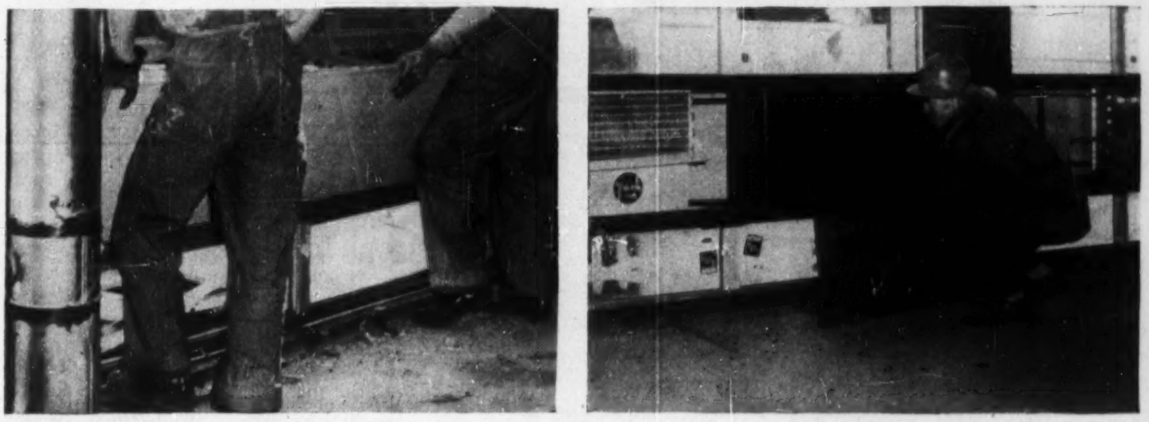
All the opaque bands are composed of insulated metal panels clipped into aluminum sash in the same manner as the glass windows and thus may be considered a substitute for glass. Local building-code requirements are satisfied, since the code allows the area between spandrel beams to be entirely of glass if the panels have a fire resistance at least equal to that of wire glass. A similar technique was adopted for the Statler Hotel in Hartford, Conn., to enable panels only 1¼ in. thick to be used on the exterior (ENR June 10, p. 31).

• **Mile High Center**—The new skyscraper, known as the 1700 Broadway Building, is the largest of the buildings in the $15-million Mile High Center project, now under construction. Other structures on the 301x266-ft site will be a two-story transportation building to be used as an airline terminal and a four-story bank. A parking garage to be built across the street will be connected to the center by a tunnel.

The 23-story office building rises to its full height without setbacks, except



ALUMINUM FRAME is attached to the building frame (left). Into it are clipped aluminum panels to cover spandrel beams.



FILLER SPANDRELS—porcelain-enameled sandwich panels—are clipped to the aluminum frame (left), and air-conditioning units are placed behind them (right). Above the filler spandrels are fixed windows, below, double glazing.

for two penthouses for mechanical equipment. It is 127x152 ft in plan with columns spaced 25 ft c-c and 11-ft 2-in. floor-to-floor height. A service core containing two stairways, elevators and toilets is located at the center of the building, leaving the complete perimeter available for rental. The building will be served by four low-rise and four high-rise elevators.

• **Air conditioning**—The building contains a mechanical plant that, in addition to serving the needs of the skyscraper, also will supply the other buildings in the project with steam and chilled water for air conditioning. The mechanical installation was designed for simplicity of operation. Except for elevators and their machine rooms, there is no moving equipment between the lowest and topmost office floors.

Mechanical centers are in the basement and penthouse. The basement houses steam-generating, water-chilling, power and lower-floor air-distribution apparatus, while the penthouse incorporates cooling tower, domestic water storage and upper-floor air-distribution equipment.

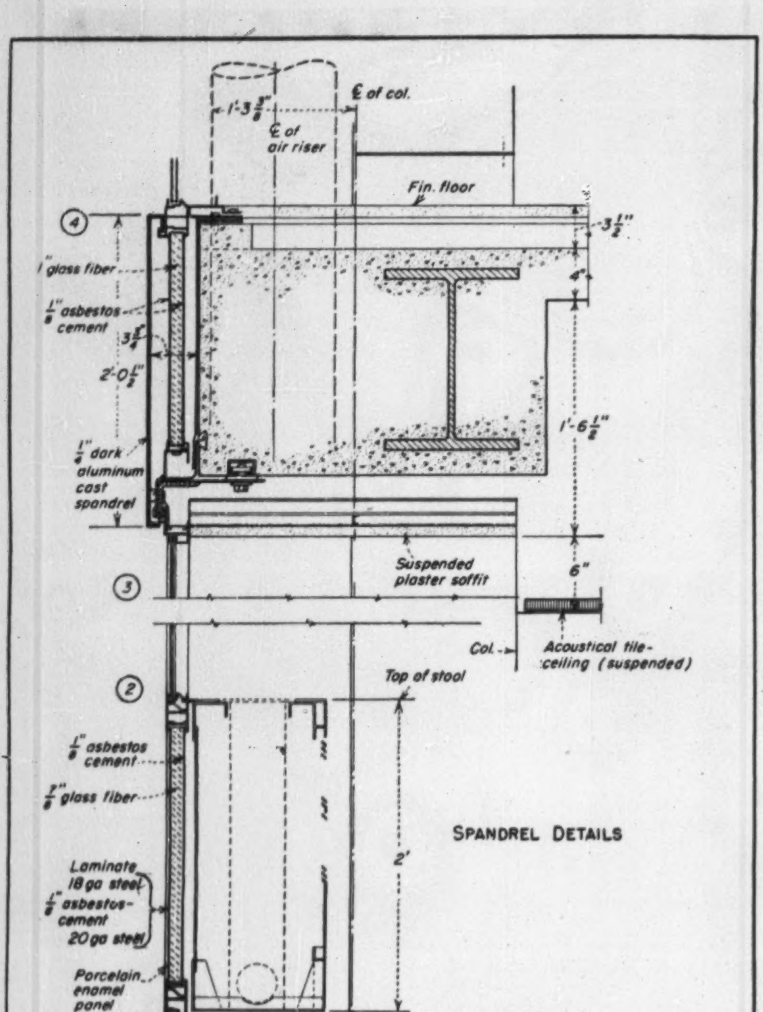
For air-conditioning purposes, office floors are divided into two zones—perimetrical and interior. Conditioning for peripheral rooms is provided by under-window units. Set 1 ft above the floor, these 2-ft-high units extend completely around the building in each story. To keep horizontal piping runs to a minimum, they are served by air and water risers about 8 ft apart—along the columns and at third points of each 25-ft bay.

The interior zone is conditioned with air carried in two sets of round ducts, which rise from the mechanical center in the basement to connect with the one on the roof. Air in these vertical ducts is conveyed at twice the air speed normally used. This permits relatively small ducts to be used, enabling maximum utilization of floor area for income-producing purposes. Overhead diffusers distribute the air in each story.

During normal operating hours, all conditioned air is re-used. After being exhausted from office areas, the conditioned air ventilates service areas and serves as combustion air for the steam plant.

The walks connecting the office building with adjoining structures and the open area under the building at first-floor level are equipped with underground snow-melting coils. A heat-transfer oil circulates in the pipe, eliminating the need for controlling anti-freeze solutions, which were used before in this type of installation.

• **Unusual facade**—As mentioned previously, the arrangement of the perimetrical air-conditioning system is expressed in the architectural treatment of the exterior of the building. Three one-story-high aluminum frames were bolted to the building frame in each bay to hold the windows and opaque panels. Dark-colored panels were clipped to them to cover spandrel beams and columns, and light-colored panels, to mark the outline of the air-conditioning units and risers.


℄ of col.
1'-3 3/8"
℄ of air riser
Fin. floor
3 1/2"
4"
④
1" glass fiber
1/8" asbestos cement
3 5/8"
2'-0 1/2"
1/4" dark aluminum cast spandrel
1'-6 1/8"
Suspended plaster soffit
6"
③
Col.
Acoustical tile ceiling (suspended)
Top of stool
②
1/8" asbestos cement
7/8" glass fiber
SPANDREL DETAILS
2'
Laminate 18 ga steel 1/8" asbestos-cement 20 ga steel
Porcelain enamel panel
①
PIER DETAILS
MULLION DETAILS
Plan above convector
Plan below convector
4 3/8"
Air riser
Top of stool
9 3/8"
℄ of col
1'-3 3/8"
⑩
Porcelain enamel panel
10A
10 1/16"
9A
1/8" aluminum
⑨
2'-2"

DETAILS of spandrels, mullions, pier covers, windows and double glazing show use of unusual materials in Denver structure.

First, an insulating panel was inserted along the face of the spandrel beams. About 17 in. wide, this panel consists of 1 in. of glass-fiber insulation sandwiched between two ⅛-in.-thick asbestos-cement-boards. Next, the spandrel facing was clipped into the frame. This is a ¼-in.-thick aluminum casting with dark-gray anodized surface. Forming a horizontal band about 2 ft. wide, it extends between mullions, or between columns and mullions.

After a similar casting was positioned to cover the columns from street level to roof, these dark-gray vertical and horizontal bands, contrasting with the windows and light-colored bands, clearly delineated the structure of the building.

Filler spandrel panels were clipped into the aluminum frame 1 ft above the floor, at the level of the underwindow air-conditioning units. About 20 in. wide, these light-buff panels consist of ⅞ in. of glass-fiber insulation sandwiched between two rigid facings. The facing on the inside is ⅛-in.-thick asbestos-cement board. On the outside is a three-piece laminate of 18-gage porcelain-enameled steel, ⅛-in. asbestos-cement and 20-gage steel sheet—so constructed to prevent "oil canning," or warping. These panels extend horizontally between mullions, or between columns and mullions.

Similar, but thinner porcelain-enameled sandwich panels form mullions, which extend in unbroken vertical lines from the second floor to the roof. Providing insulation for the air-conditioning risers, these are positioned at the third points of each bay.

Between the filler spandrel and the spandrel panels above are 6-ft high fixed windows. The 12-in. openings below the filler spandrels are closed off with double glazing.

The windows will be cleaned from the outside by men working from electrically operated "spider" staging. This type of staging originally was developed as a power-driven unit for painting bridge towers. As used for this building, it consists of two power-driven units with an adjustable platform center section. For easy handling the entire framework is made of aluminum. Cables that support the staging are hung from stainless steel eyebolts anchored in the walls of the penthouse. It is believed that this is the first application of this type of staging to window washing.

Aside from a suspended plaster soffit extending back a short distance from the windows under the spandrel-beam fireproofing, ceilings in office areas are formed with acoustical tile. They are set at a clear height of 8½ ft above the floors.

(*Continued on page 36*)

New Protection Against Roof Damage

NEW CELOTEX Channel-Seal

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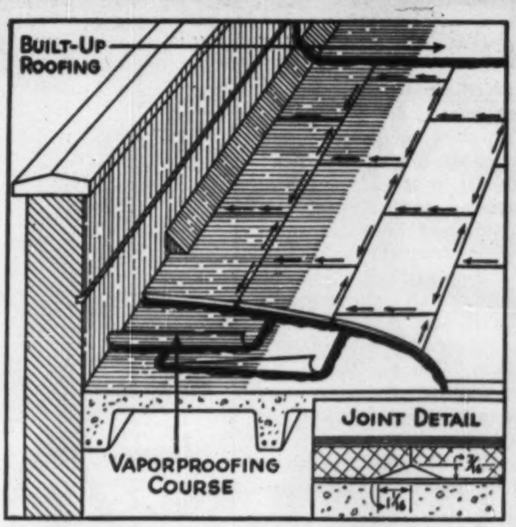
guards against blistering and separation of felt and insulation



As you can see in the diagram, high-pressure air pockets do not build up with Celotex Channel-Seal Roof Insulation. Pressures due to temperature differences are constantly being equalized by movement of air through the channels. This channeling principle of roof protection has been proved effective by many years of actual use on jobs of every type and size.

For an extra margin of safety against costly roof damage due to the building up of high-pressure air pockets where insulation meets felt—specify new Celotex Channel-Seal Roof Insulation!

Each piece has bevels 7/16" high by 1 1/16" wide on all bottom edges. When units are laid on the deck, these bevels form a network of broad, interconnecting channels extending over the entire roof.

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As higher pressures build up in some areas of the roof because of rising surface temperatures, they are relieved by air and vapor movement through the channels. This equalizes and reduces pressure—minimizes the danger of blistering or separation of felt and insulation!

Made of a low-density board of high insulating efficiency, Celotex Channel-Seal Roof Insulation comes in a range of thicknesses to meet the specific insulation requirements of each job. It is asphalt coated on both sides and all edges, for extra moisture protection in storage and on the job.

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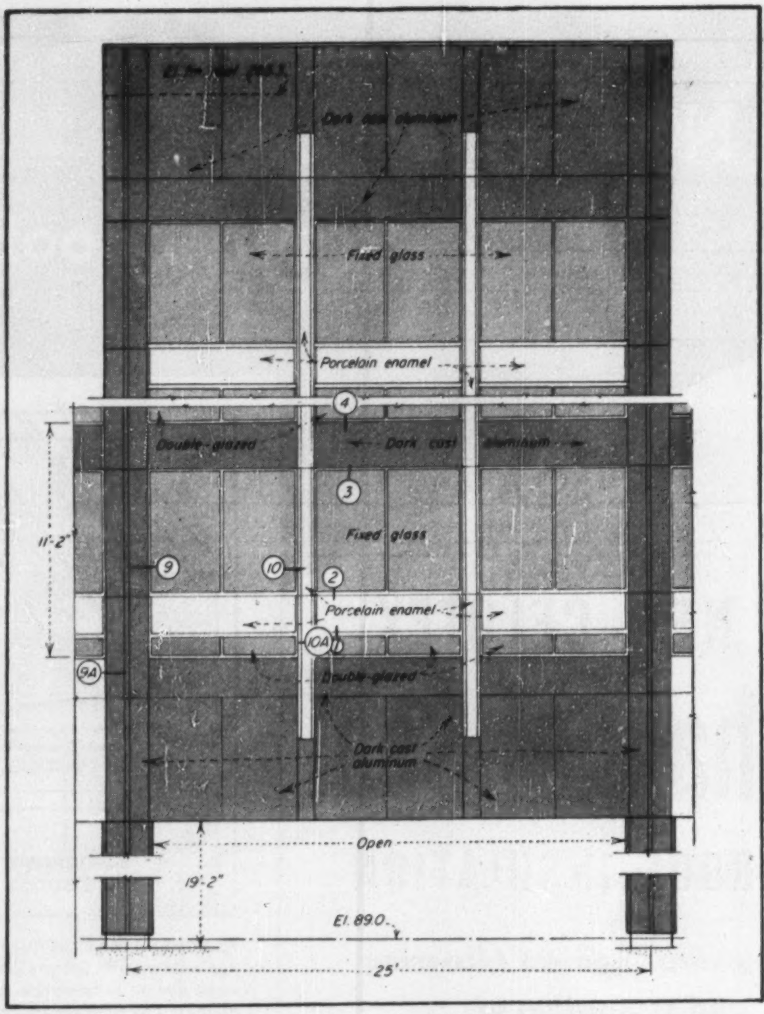
Functional facade . . .



ELEVATION of typical exterior bay is criss-crossed with light and dark bands.

• Wind bracing—Because of the unusual nature of the exterior, the structural engineers gave special attention to wind resistance of the building frame (design load—20 psf). The structure is founded on piles. These were driven through sand and gravel to a blue clay and shale formation, known as the Denver formation, which was encountered about 60 ft below grade, 30 ft below basement level. The 4,700-ton steel frame rises from these pile supports to a height 294 ft above grade.

All field connections were made with high-tension bolts. While semirigid connections were used for the wind girders.

Beams, spaced about 8 ft apart in the 25-ft bays, mostly are 14-in. wide-flange, to keep story height to a minimum, although it might have been more economical to use 18-in. beams in some places.

The beams support 4-in.-thick lightweight structural concrete floors. Attaining a compressive strength of 2,500 psi, the concrete, which weighs 87 lb per cu ft, was made with expanded-clay aggregate and reinforced with wire mesh, with top bars being placed for negative moment over girders. Allowable stress for the mesh was 29,000 psi, based on a yield point of 56,000 psi and ultimate strength of 70,000 psi. Slab design assumed catenary action.

Beams and floor slabs were designed for composite action, reducing structural-steel requirements about 10% (design load—138 psf, including a 50-psf live load). Furthermore, by making the slabs and beam fireproofing of monolithic structural concrete, the engineers were able to increase the wind resistance and rigidity of the building by a considerable amount.

Additional wind bracing was placed at the center of the building: In the service core, cross bracing was placed in vertical planes in two directions from the 14th floor down to the foundations.

• Designers and builders—Mile High Center is a joint venture of Webb & Knapp, Inc., and the George A. Fuller Co., owners and builders. Design was the work of the Webb & Knapp Architectural Division, under I. M. Pei, director, with U. J. Franzen as project architect and Eason Leonard as architect in charge of field supervision and coordination. Kahn & Jacobs, of New York City, and G. Meredith Musick, of Denver, were associate architects. For Fuller, the job is under the supervision of M. J. Grogan, vice president, with John Layter, construction manager. Henry Sexton is job superintendent and William Hurst, mechanical supervisor.

Severud, Elstad, Krueger are the structural engineers. Jaros, Baum & Bolles, mechanical engineers, designed the air-conditioning system.

Bethlehem Steel Co. erected the steel frame. Installation of the facades was carried out by the Universal Corp., with porcelain-enameled panels fabricated by the Texlite Co. and aluminum panels by Bohn Aluminum Co. Westinghouse Electric Corp. installed the elevators, which are designed to be operated either with or without operators.

Test data on aggregates compiled by Army Engineers

Results of all tests of concrete aggregates in many parts of this country made since 1946 by laboratories of the Corps of Engineers, U. S. Army, are now available for inspection in most Army Engineer district offices.

Results of all tests were sent to the Waterways Experiment Station at Vicksburg, Miss., where they were compiled in a uniform manner and transferred to loose-leaf sheets. Those sheets then were duplicated and bound in five volumes for distribution to regional offices.

Each of these maps covers a rectangle one degree of longitude in an east-west direction, and one degree of latitude. There are 333 such one-degree maps on which the 1,210 sources from which aggregates were tested have been spotted for the information of those seeking to determine what sources of aggregates in a particular part of the country have been tested.

The volumes are not for sale. Information as to where copies are on file for public use may be obtained from Col. C. H. Dunn, director, Waterways Experiment Station, Vicksburg, Miss.

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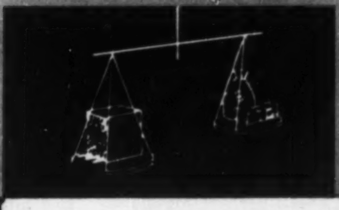

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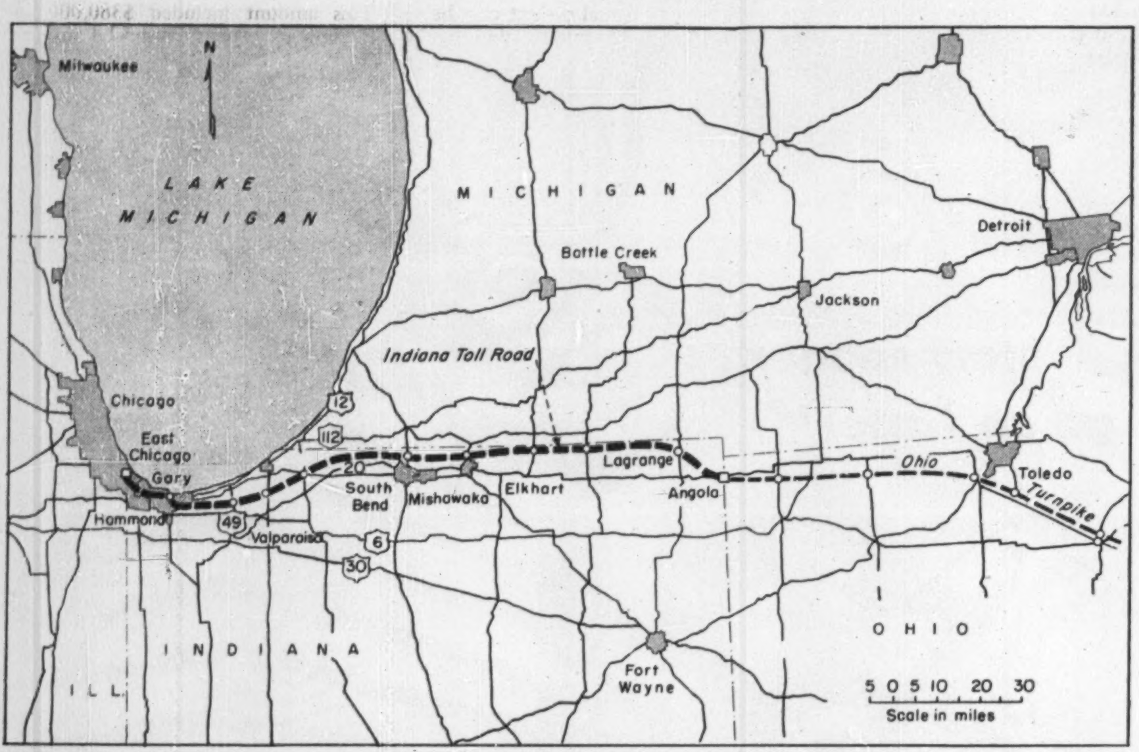


FOUR TOLL ROUTES across northern Indiana were studied, but the one nearest the Michigan line won out in economic evaluations on the basis of probable earnings.

July start planned for Indiana turnpike

Design plans and right-of-way purchases are on schedule. Eastern 70 miles may be carrying traffic by October, 1955.

Skeptics who believe that Indiana can't match Ohio for speed in toll road construction may be badly mistaken. True, Indiana will be starting its work about one and one-half construction seasons behind Ohio. But the target date for opening the eastern 70 miles—from Elkhart to the Ohio state line—is October of next year.

Not just by coincidence, this is the completion date for the western end of Ohio's 241-mile, $326-million east-west toll highway (ENR, Feb. 11, 1954, p. 32). Indiana hopes to avoid a traffic pile-up at its eastern boundary such as developed when the Pennsylvania Turnpike was opened to the Ohio line.

Latest report from Indianapolis—headquarters of the Indiana Toll Road Commission—is that bids for initial construction may be taken in July of this year. But first, a bit of background is necessary on how the $280 million, 156-mile east-west toll road project got accelerated into high gear.

- **Almost lost one season**—At first it was believed that the underwriting interests wouldn't be able to sell the bonds until April of this year. This would have meant that construction couldn't start until next year—thus losing the better part of one construction season.

But $280 million of bonds were sold successfully last December at a net interest cost of 3.56%—and the Indiana Toll Road Commission was in business. Prior to that it had been operating on a $358,000 loan from the Indiana State Highway Commission to cover the cost of two reports: "Traffic and Earnings" by Parsons, Brinckerhoff, Hall & MacDonald; the other was a "Civil Engineering Report," by the J. E. Greiner Co.

Next step was to employ the Greiner firm as general consultants and negotiate contracts with several consulting firms to prepare designs (see table). These so-called "Contracting Engineers" were selected on the basis of their experience, ability to produce plans quickly, and financial soundness, after detailed consideration by the commission.

- **Several routes studied**—A great deal of study went into locating the toll route, before the final choice was made. Four separate locations were considered from a junction with the western end of the Ohio Turnpike to a common point a short distance east of Gary.

From that point to the Indiana-Illinois state line—a distance of about 24 miles—studies were made on nine combinations of routes before the final one was selected. It terminates at a junction with U. S. Highways 12 and 20 at the Illinois state line.

The 156-mile toll road was divided into 11 design sections; 10 of which range from 12 to 15 miles in length. The 20-mile section through the industrial section of Lake County at the western terminus subsequently was divided into three sub-sections.

For the purpose of awarding contracts, the entire route between the Illinois and the Ohio state lines is divided into 53 contract sections; the longest of which is 6.5 miles.

The first construction is expected to be started on the 70-mile length of toll road between Elkhart and a junction with Ohio's east-west turnpike (see map). This part of the road is in more open country than the western portion, and construction should go faster.

But there's a second, and more important reason for expediting the construction of this 70-mile stretch. It will permit the toll road to start earning its way. And that's extremely important, since interest charges on the $280 million of bonds cost $1,120 per hour, 24 hr. per day.

The toll road commission and two Indianapolis banks, serving as trustees for the financing interests, get monthly progress reports prepared by Greiner. These reports show the progress being made in acquiring right-of-way, construction progress including designs, and expenditures.

Report No. 5, dated May 31, showed there are 733 ownerships of rights-of-way in the six counties east of Lake County. Of this number 674 appraisals have been completed, 645 were approved for negotiation and there were 234 signed options. For the entire toll road there are 1,300 main-line parcels and 100 supplementary parcels of right-of-way to be acquired. Also, 1,050 permanent easements and 175 temporary easements to be obtained

• Right of way action—Indiana law permits speedier action to accomplish occupancy of toll road right-of-way than do some neighboring states. Here's how it works:

When the property owner and the commission agree on the price of a parcel of land, it is simply a matter of getting an option followed by outright purchase. But in those instances where the commission's appraised value is considered too low by the owner, the commission petitions the county court to condemn the parcel in question.

The court, in turn, appoints three freeholders to appraise the property, and place a cash value on it. By depositing that amount of money with the court, the commission gains occupancy of the land.

If the owner isn't satisfied with the cash value of his land as established by the court-appointed appraisers, he may take it to court for a final decision. But in the meantime construction can proceed.

By the end of this year an estimated 90% of the 300-ft wide right-of-way will be acquired, with the remaining 10% purchased by the end of next February. The 156 miles of right-of-way is expected to cost about $9.5 million (see table).

• Construction program—According to the report, less than 10% of the toll road, measured in dollar value of actual construction, will be completed by the end of next March. By then the tempo will pick up, with from 5% to 8% of the total project cost being completed each month during the next 7 months.

Construction is expected to reach its peak during August, September and November next year. About $16.5 million of construction is scheduled for completion during each of those three months. The second peak will be in August, 1956, during which $12.3 million of work is planned for completion.

Progress probably will drop down to 1% of the total cost being completed per month next winter but, beginning in April, 1956, it will pick up and average about 5% per month until the entire project is finished. Target date for completion of the entire road, ready for traffic, is Nov. 15, 1956. As shown in the accompanying table, the total construction cost of the 156-mile toll road will be about $176 million.

Up to the end of last month, expenditures totaled nearly $3 million. This amount included $380,000 of preliminary expense and $2.4 million for engineering. This does not include financing costs.

• Designs coming along—Most of the design sections are ahead of schedule. The one major exception is in a highly industrialized area near the Indiana-Illinois state line. The location of that 12-mile stretch of toll road has now been finalized and the design is starting to catch up.

Some of the contracting engineers are well ahead of schedule in preparing designs. Over-all, the entire project was 53% designed at the end of last month. The standard specifications, general provisions and contract documents are practically finished.

• Similar to Ohio's design—Except in urban areas, Indiana's toll road will be similar in design and cross section to Ohio's east-west turnpike. Con-

Major Quantities for 156 Miles of Toll Road

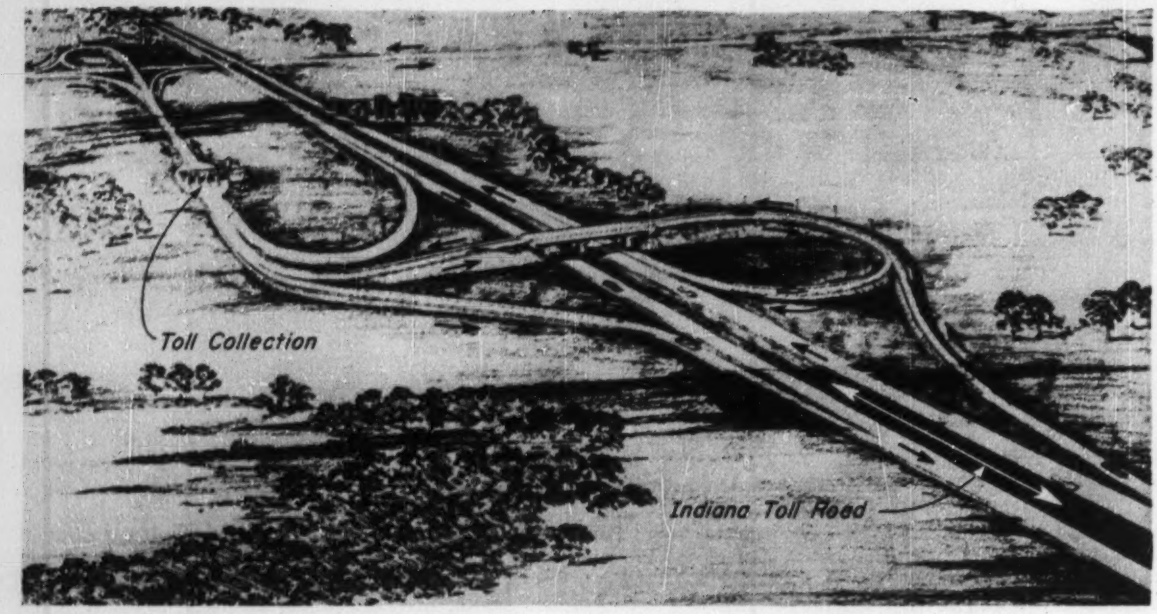
Item	Quantity
Excavation (all classes)	50,200,000 cy
Bituminous surfacing (all types)	3,800,000 sy
Portland cement concrete paving	4,500,000 sy
Structure concrete	300,000 cy
Structural steel	59,000 tons
Reinforcing steel	27,000 tons
Metal pipe culverts and storm sewers (18 to 72-in. dia)	480,000 lf
Subsurface and agricultural tile drains (6 to 24-in. dia)	500,000 lf
Foundation piles	480,000 lf

Estimated Costs of Indiana's East-West Toll Road

Item	Estimate
Preliminary	$600,000
Land	9,556,000
Construction	176,140,000
Utility adjustments	3,960,000
Engineering	16,209,000
Administrative and legal expenses	2,200,000
Maintenance and office equipment and initial supplies	1,164,000
Contingencies	30,171,000
Total project cost, exclusive of interest and financing charges	$240,000,000

Engineers in charge of Construction Contracts

Section	Firm	
Sub-section No. 1A	De Leuw, Cather & Co., Chicago	(4 contracts, 8.8 mi)
Sub-section No. 1B	Richardson, Morehouse, Ramsey and Fisher, Pittsburgh, Pa.; Moran, Proctor Mueser and Rutledge, New York; Harry A. Balke, Cincinnati, Ohio.	(8 contracts, 11.6 mi)
Section 2	J. Stephen Watkins, Lexington, Ky.; Modjeski and Masters, Harrisburg, Pa.	(4 contracts, 12.2 mi)
Section 3	Hazelet and Erdal, Chicago, Ill.	(3 contracts, 13.4 mi)
Section 4	Alfred Benesch & Assoc., Chicago	(4 contracts, 14.9 mi)
Section 5	Charles W. Cole & Son, South Bend; Pierce, Gruber & Beam, Indianapolis	(4 contracts, 14.3 mi)
Section 6	Frank J. Kornacker & Assoc., Chicago	(5 contracts, 15.2 mi)
Section 7	Clyde E. Williams & Assoc., South Bend; Beiswenger & Hoch, Akron, Ohio and Indianapolis	(5 contracts, 13.9 mi)
Section 8	Vogt, Ivers, Seaman & Assoc., Cincinnati	(4 contracts, 14.0 mi)
Section 9	Hardesty & Hanover, New York; Andrews, Clark & Buckley, New York	(6 contracts, 12.4 mi)
Section 10	Brown and Blauvelt, New York	(3 contracts, 13.1 mi)
Section 11	W. H. McFarland, Binghamton, N. Y.	(3 contracts, 12.4 mi)



FREE FLOWING INTERCHANGES, with toll collecting facilities, will be located at nine strategic intermediate points to collect and discharge traffic. Acceleration and deceleration lanes, 1,200 ft in length, will give added safety.

struction specifications will be modeled after those of the Indiana State Highway Commission, but modified to include details pertinent to the construction of a project of the character and magnitude of this projected highway.

In all cases, both roadway pavements will be reinforced portland-cement concrete, 24 ft wide, 10 in. thick on a 6-in. layer of granular subbase material. Each pavement will be flanked by a 10-ft shoulder on the outside and an 8-ft shoulder on the inside. The shoulders will be surfaced with bituminous macadam to provide safe off-road areas.

Normally the two 24-ft pavements will be separated by a 56-ft median. The 40-ft clear distance between the inside shoulders will be covered with topsoil, seeded and mulched. Transverse drainage of the median strip will be to its center line midway between the roadway pavements. Standard width of right-of-way is set at 300 ft.

- **Restricted cross section**—A restricted cross-section of highway will be constructed through the urban areas of the cities of Hammond, East Chicago and Gary.

Pavement and shoulder widths will not be changed, but the inside shoulders will be separated by a raised concrete median, 4 ft wide and 6 in. high. Right-of-way may have a minimum width of 104 ft, with longitudinal retaining walls being used as needed, just inside the line of the right-of-way.

Speeds probably will be restricted to 55 mph in these urban areas and 65 mph elsewhere. The design speed is 80 mph.

- **Long sight distances**—A minimum sight distance of 900 ft to an object in the road, 4 in. high, will be provided at all horizontal curves and at the summits of vertical curves. A minimum headlight sight distance of 1,000 ft will be furnished at sags in vertical curves.

Ascending grades will be limited to 2%. Descending grades, however, may be as much as 4%, from the standpoint of economy. Horizontal curves will be limited to 2½ deg. Straight alignment over excessive lengths, reverse or "S" curves, and compound curves will not be used. The entire right-of-way will be fenced in for safety and to limit unauthorized access.

There will be a total of 253 bridge structures. They include two major structures, 10 stream crossings, 154 highway grade separations, 26 railroad grade separations, and 61 big box culverts.

- **Eleven interchanges**—There will be a terminal interchange at the Indiana-Illinois state line, and a terminal plaza at the Indiana-Ohio state line. There will also be 9 intermediate interchanges. Four will connect with U.S. highways, and 5 with important state routes.

Eight service areas will be provided eventually. There the motorist may obtain food and non-alcoholic beverages, gasoline, oil, supplies and minor servicing for his vehicle. Overnight accommodations will not be available. Five maintenance areas will be located strategically along the toll road.

- **Traffic and earnings**—According to the "Traffic and Earnings" survey completed last October, the road will produce an average annual gross revenue from tolls and concessions of $26.5 million per year over a 37-year period, beginning with its first full year of operation now planned to start late in 1955.

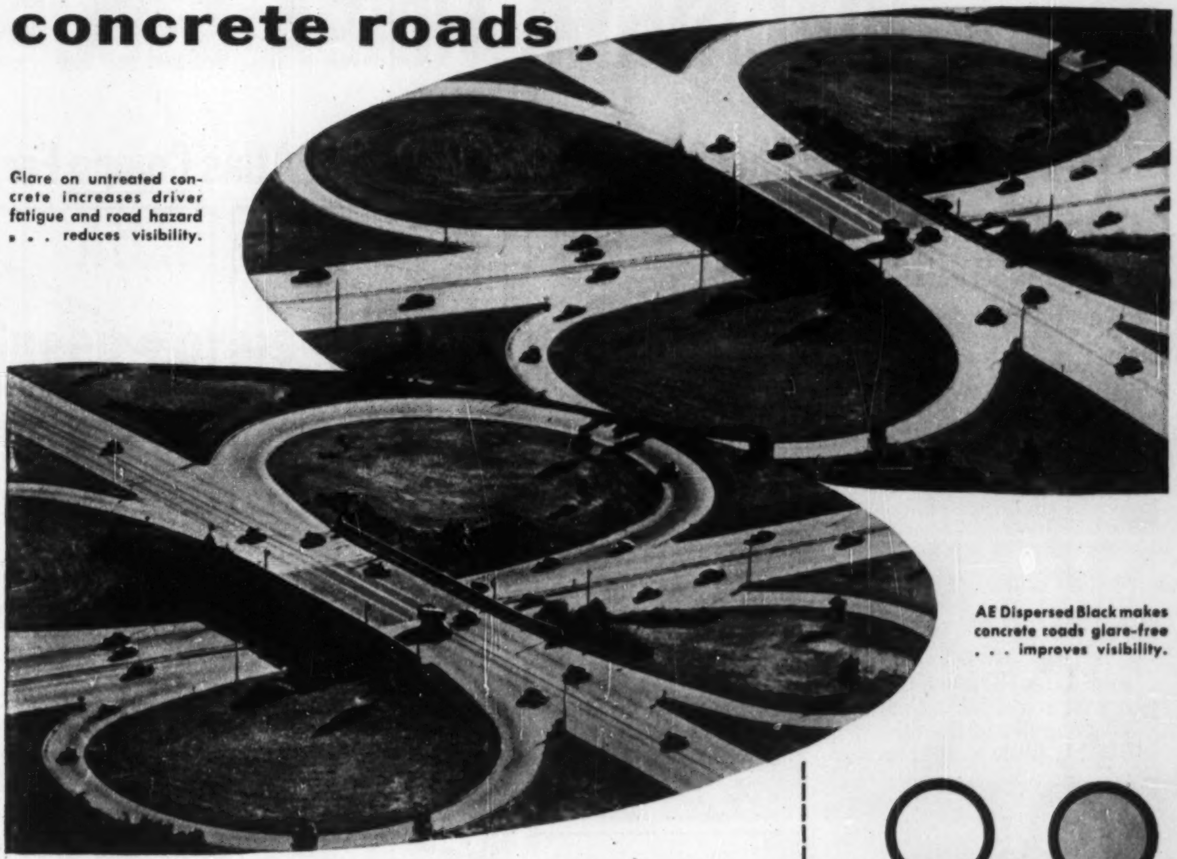
For a one-way trip over the full 156-mile length of toll road, the following rates probably will apply: Passenger cars, light trucks and motorcycles, $1.95; passenger car with trailer, $2.40; and buses, $6.05. Trucks and truck-trailer combinations will be charged a sliding scale, ranging from $3.05 for a gross weight of 16,000 lb to $10.55 for a truck that pulls a full trailer having a gross weight of 85,000 lb.

During the first year of operation, about 42% of the toll revenue is expected to come from passenger cars, 54% from heavy trucks, and 4% from light and medium trucks, engineers believe.

- **Men in charge**—Albert J. Wedeking is executive director of the Indiana Toll Road Commission. Charles W. Keating is administrative assistant and secretary-treasurer. Herman D. Hartman is chief engineer, and Wilbur F. Smith is right-of-way engineer.

For J. E. Greiner Co., Harry M. Brown is partner-in-charge, Harvey A. Harnden is project manager, and Benjamin W. LeSueur is project engineer.

HOW TO PREVENT GLARE on air-entrained concrete roads



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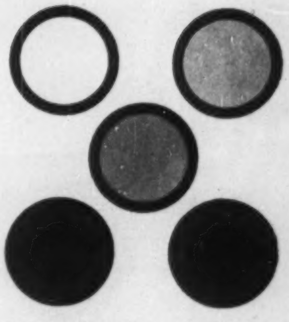

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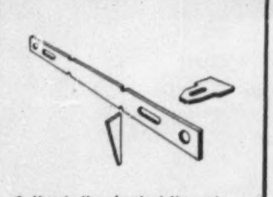

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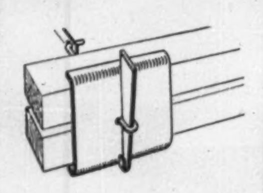

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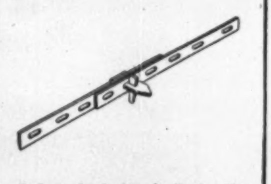

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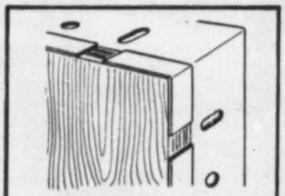

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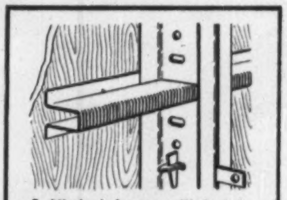

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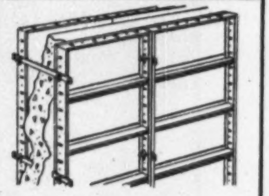

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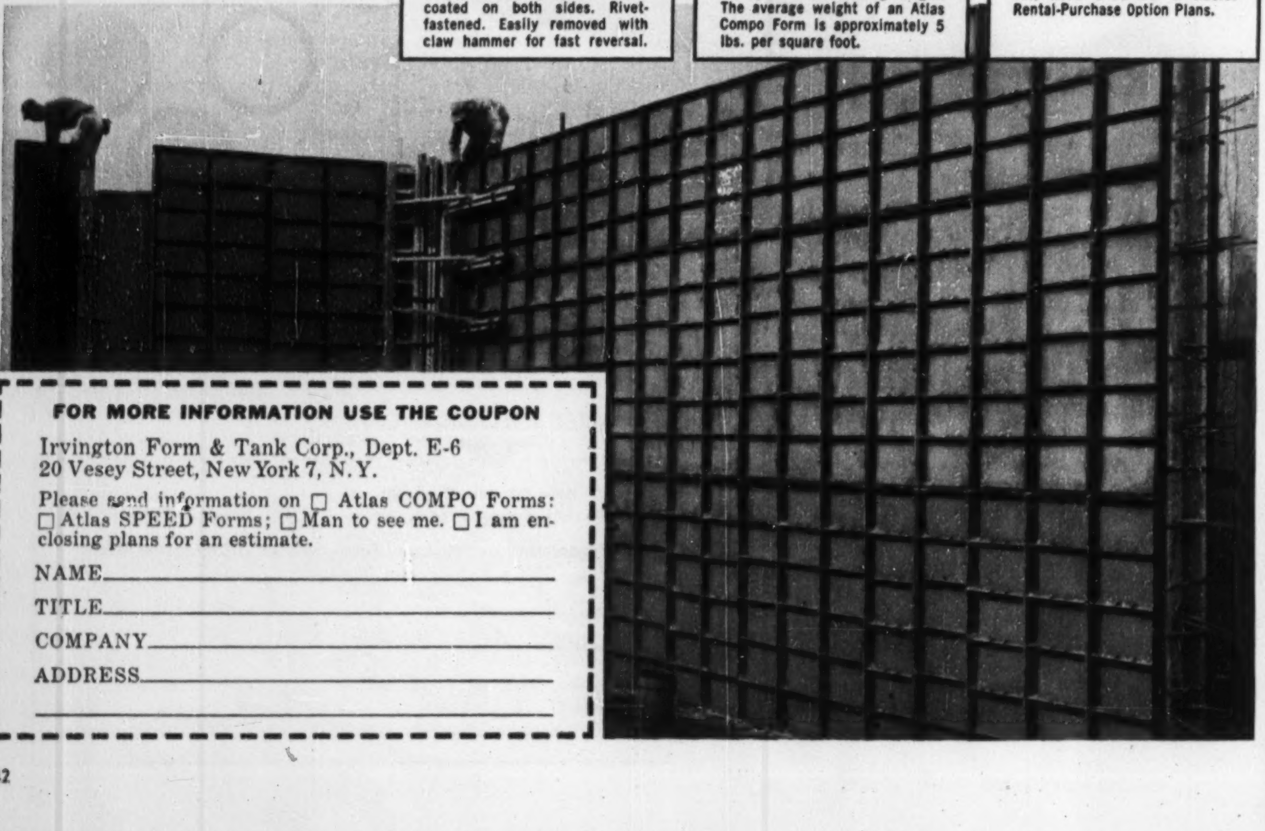

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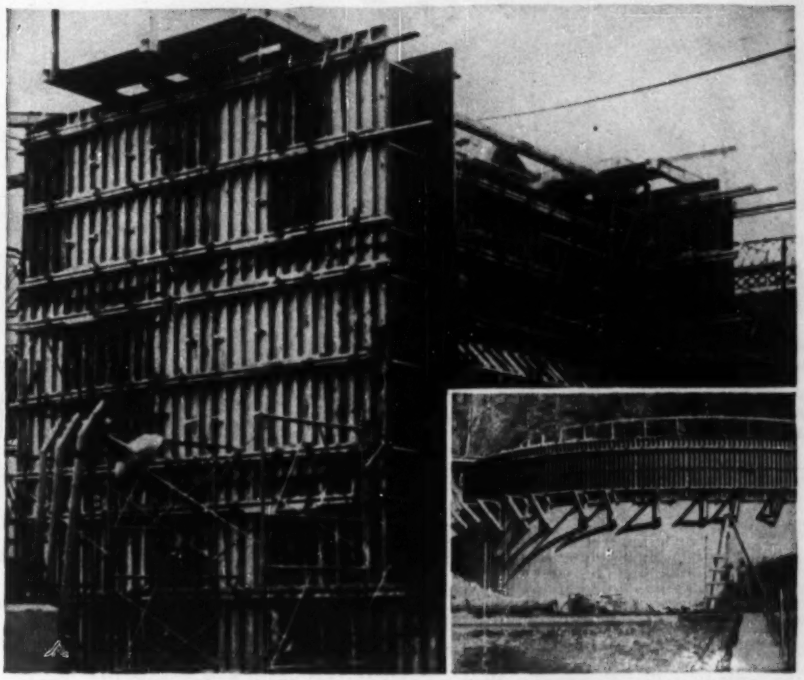

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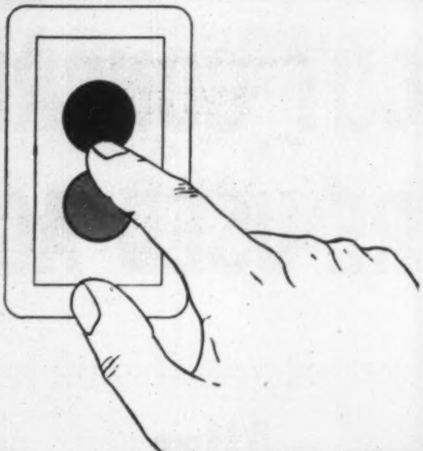
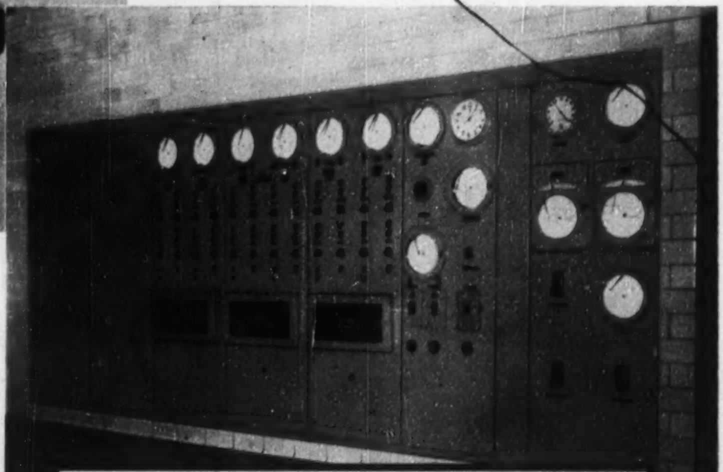
HOW BUILDERS *AUTO-CENTRAL* FILTER CONTROL REDUCES COSTS...



▲ **Aldrich Purification Units and Filters at Alexandria plant of American Water Works Service Company.**

Central control panel in pump and chemical feed building. From this board, the filter effluent and backwash rates are remotely controlled by means of Builders Auto-Central Control. ▶



The same type of automatic time-sequence operation which has won such wide acceptance for automatic home washing machines now comes to the modern water works. Here is one of the first installations of Builders Auto-Central (automatic-centralized) filter Control, proven by over three years of successful operation at the Alexandria Water Company in Alexandria, Va.

Builders Auto-Central Control has many advantages: It saves time — relieves plant personnel for other duties. It eliminates supervisory headaches. It insures accurate backwash rates, proper washing times, and helps to maintain maximum filter efficiency. It reduces construction costs by eliminating the need for shelter over conventional operating tables.

Here's how Builders Auto-Central Control backwashes a filter: A Builders Loss-of-Head Gauge signals the need for filter backwashing. The pumping station operator (there's only one per shift!) pushes a button which starts the backwash cycle for the proper filter. The Sequence Controller and Pneumatic-Hydraulic Valve Positioners then complete the washing cycle step by step, and return the filter to normal operation TOTALLY UNATTENDED.

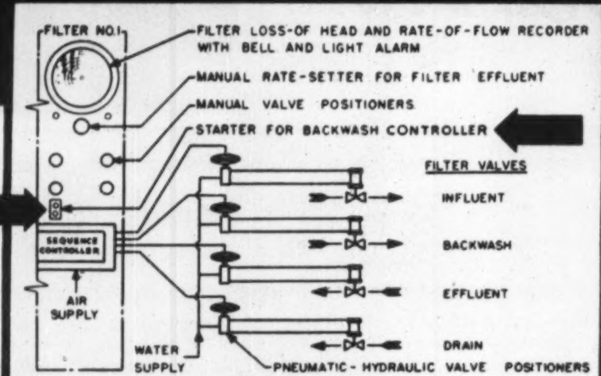

FILTER NO.1
FILTER LOSS-OF HEAD AND RATE-OF-FLOW RECORDER WITH BELL AND LIGHT ALARM
MANUAL RATE-SETTER FOR FILTER EFFLUENT
MANUAL VALVE POSITIONERS
STARTER FOR BACKWASH CONTROLLER
FILTER VALVES
INFLUENT
BACKWASH
EFFLUENT
DRAIN
SEQUENCE CONTROLLER
AIR SUPPLY
WATER SUPPLY
PNEUMATIC - HYDRAULIC VALVE POSITIONERS

Diagram of control panel for Filter No 1.
Operation may be manual or automatic as desired.

Auto-Central Filter Control is another example of Builders' pioneering in the water works field. For complete details on this or other types of Builders Water Works Equipment, write Builders-Providence, Inc. (Division of B-I-F Industries, Inc.), 390 Harris Ave., Providence 1, R. I.

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METERS
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CONTROLS

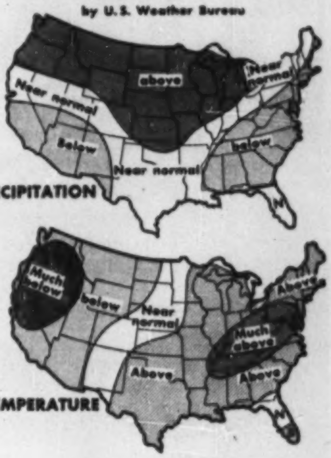
Observed weather in 20 cities, compared with normals

	Precipitation, inches				Temperature, degrees			
	May 1954	Departure fr. normal	5 mos. 1954	Departure fr. normal	Mean May '54	Departure fr. normal	Av. daily Maximum	Av. daily Minimum
Atlanta	3.31	−0.51	14.09	−6.56	64.2	−5.8	74.7	53.7
Baltimore	2.07	−1.94	12.20	−5.68	60.8	−2.9	70.6	51.0
Birmingham	3.23	−0.51	19.66	−5.19	65.1	−4.4	76.6	53.5
Boston	13.38	+10.47	28.59	+12.36	56.3	−1.5	63.3	49.3
Chicago	1.75	−1.91	14.68	+2.10	57.1	−2.1	67.5	46.6
Cincinnati	1.62	−1.92	11.36	−5.90	59.8	−3.8	70.8	48.8
Cleveland	1.04	−1.69	18.47	+5.62	57.4	−1.7	68.0	46.7
Dallas	4.98	+0.01	13.92	−2.82	69.9	−3.8	80.1	59.6
Denver	0.38	−1.68	1.64	−4.62	58.0	+0.7	69.5	46.4
Detroit	1.39	−2.22	13.14	−0.02	54.7	−3.1	65.5	43.9
Kansas City	3.57	−0.84	11.50	−1.62	61.8	−3.7	71.6	51.9
Los Angeles	0.02	−0.24	10.72	+1.18	63.8	−1.0	72.0	55.6
Minneapolis	2.54	−0.58	8.74	−0.44	53.1	−5.4	62.3	43.9
New Orleans	5.11	−0.32	14.60	−11.80	72.9	−3.2	80.6	65.2
New York	3.30	−0.21	12.23	−4.65	59.2	−1.6	65.8	52.5
Philadelphia	2.64	−0.94	13.95	−2.80	61.6	−2.1	69.3	53.8
Pittsburgh	2.65	−0.84	14.50	−2.32	56.2	−3.6	66.9	45.5
St. Louis	2.80	−1.30	9.03	−6.92	62.0	−4.2	71.2	52.8
San Francisco	0.11	−0.48	11.02	−1.78	56.2	−0.9	62.4	49.9
Seattle	1.54	−0.04	20.22	+5.38	56.8	−0.5	65.0	48.6

30-DAY WEATHER OUTLOOK

Mid-June to mid-July

by U.S. Weather Bureau



Precipitation range in 20 cities, in inches

Table shows range observed 33.3% of time. Rainfall heavier 33.3% of time, lighter 33.3% of time.
Computed by U. S. Weather Bureau (based on historical records of actual precipitation)

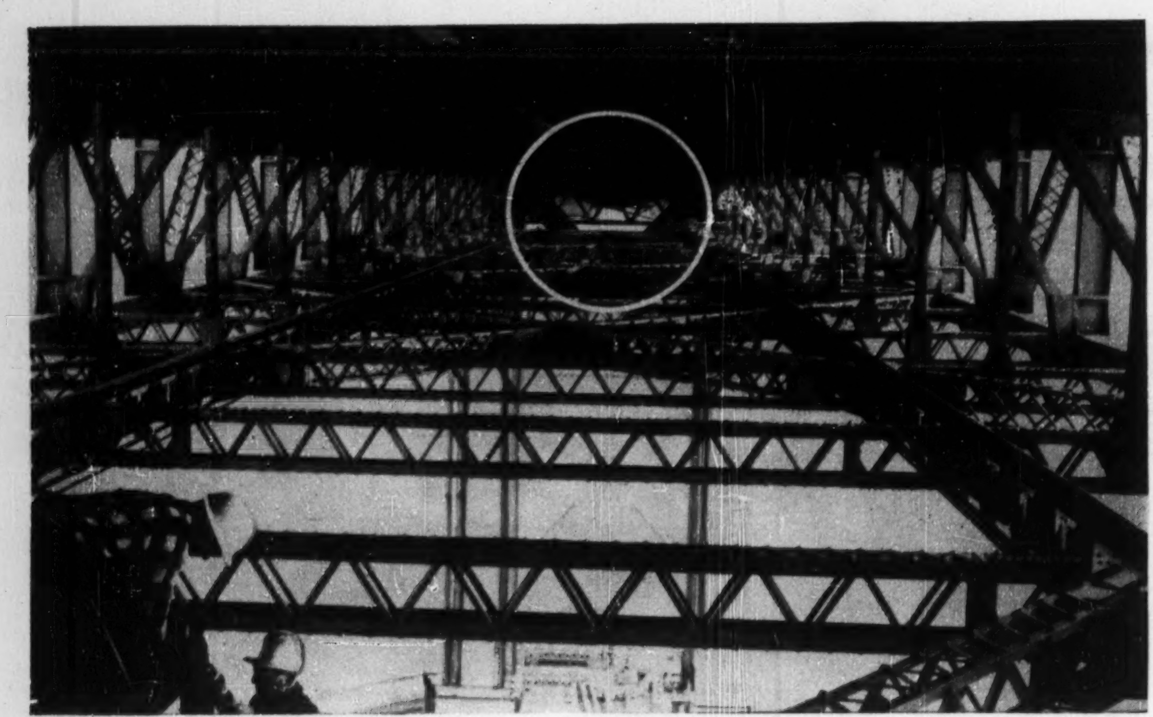
City	June	Mid. June-Mid. July	July	Mid. July-Mid. Aug.	Aug.	Mid. Aug.-Mid. Sept.	Sept.	Mid. Sept.-Mid. Oct.	Oct.	Mid. Oct.-Mid. Nov	Nov.	Mid. Nov.-Mid. Dec.	Dec.	Mid. Dec.-Mid. Jan.
Atlanta	2.87/4.43	2.93/4.62	2.99/4.80	2.89/4.90	2.79/5.00	2.24/4.30	1.69/3.60	1.64/3.25	1.59/2.90	2.01/3.35	2.43/3.85	2.94/4.58	3.46/5.30	3.42/5.32
Baltimore	2.52/4.44	2.57/4.71	2.61/4.98	2.91/5.32	3.20/5.66	2.65/4.51	2.10/3.36	1.88/3.57	1.66/3.77	1.61/3.44	1.56/3.12	1.99/3.43	2.41/3.73	2.59/3.85
Birmingham	2.64/4.84	3.29/5.18	3.94/5.53	3.44/5.39	2.92/5.25	2.32/4.47	1.71/3.69	1.62/3.14	1.52/2.58	1.84/3.24	2.17/3.91	2.94/4.83	3.71/5.75	3.75/5.58
Boston	2.09/3.50	2.35/3.76	2.61/4.02	2.60/4.36	2.59/4.70	2.32/4.20	2.04/3.70	2.26/3.88	2.49/4.07	2.62/4.26	2.74/4.46	2.82/4.33	2.89/4.20	2.83/4.12
Chicago	2.42/3.67	2.46/3.66	2.49/3.65	2.31/3.65	2.13/3.65	2.11/3.70	2.09/3.75	1.85/3.42	1.59/3.10	1.59/2.95	1.59/2.80	1.46/2.62	1.32/2.45	1.30/2.28
Cincinnati	2.69/4.50	2.54/4.10	2.39/3.70	2.32/3.95	2.24/4.20	2.02/3.64	1.79/3.08	1.64/2.99†	1.49/2.90	1.74/3.28	1.99/3.67	2.14/3.48	2.29/3.28	2.32/3.54
Cleveland	2.00/3.56	2.34/3.82	2.47/4.08	2.15/3.84	1.83/3.60	2.07/3.51	2.30/3.41	2.03/3.29	1.74/3.16	1.79/2.97	1.82/2.77	1.76/2.68	1.70/2.56	1.65/2.58
Dallas	1.79/4.45	1.59/3.72	1.39/3.00	1.30/2.89	1.22/2.78	1.50/2.94	1.77/3.10	1.66/3.30	1.55/3.50	1.60/3.25	1.64/3.00	1.36/3.00	1.09/3.00	1.24/3.05
Denver	0.67/1.75	0.94/1.88	1.21/2.00	1.04/1.86	0.87/1.73	0.60/1.39	0.52/1.05	0.57/1.08	0.62/1.10	0.46/0.89	0.29/0.68	0.34/0.72	0.39/0.77	0.28/0.64
Detroit	2.84/4.10	2.46/3.90	2.09/3.70	1.94/3.54	1.79/3.38	1.80/3.41	1.82/3.44	1.72/3.02	1.63/2.60	1.70/2.66	1.77/2.73	1.70/2.66	1.64/2.60	1.63/2.50
Kansas City	3.61/6.25	3.19/5.47	2.77/4.69	2.74/4.84	2.70/5.00	2.84/5.00	2.99/5.00	2.34/4.54	1.69/4.07	1.48/3.21	1.27/2.35	1.02/1.95	0.77/1.55	0.68/1.48
Los Angeles	0.00/0.02	0.00/0.01	0.00/T	0.00/T	0.00/T	0.00/0.02	T/0.03	0.08/0.32	0.15/0.60	0.20/0.95	0.26/1.30	0.70/2.00	1.14/2.70	1.19/3.00
Minneapolis	3.14/5.00	2.64-4.50	2.14/4.00	2.16/3.85	2.19/3.70	2.24/3.78	2.29/3.85	1.79/3.15	1.29/2.45	0.98/2.01	0.67/1.57	0.62/1.44	0.57/1.30	0.60/1.19
New Orleans	3.72/6.50	4.54/6.95	5.37/7.40	4.90/7.08	4.44/6.75	3.78/6.12	3.11/5.50	2.55/4.81	1.99/4.12	2.34/4.40	2.69/4.67	2.96/4.92	3.24/5.17	3.36/5.28
New York	2.36/3.80	2.81/4.25	3.26/4.70	2.99/4.95	2.72/5.20	2.46/4.30	2.21/3.40	2.15/3.76	2.09/4.13	2.15/4.04	2.21/3.95	2.42/3.86	2.64/3.77	2.55/3.71
Philadelphia	2.69/4.10	2.94/4.24	3.19/4.37	2.99/4.91	2.79/5.45	2.44/4.62	2.09/3.90	2.04/3.85	1.99/3.80	2.18/3.65	2.36/3.50	2.50/3.70	2.64/3.90	2.60/3.80
Pittsburgh	2.86/4.20	2.79/4.35	2.72/4.50	2.52/4.15	2.32/3.80	2.20/3.30	1.87/2.80	1.98/3.00	2.09/3.20	1.96/2.96	1.84/2.72	1.96/3.00	2.09/3.27	2.12/3.20
St. Louis	2.79/5.30	2.60/4.78	2.41/4.25	2.28/4.18	2.14/4.11	2.12/3.84	2.09/3.58	1.89/3.42	1.69/3.25	1.78/3.28	1.86/3.30	1.70/3.05	1.64/2.80	1.52/2.75
San Francisco	0.00/0.05	0.00/0.03	0.00/0.01	0.00/0.00	0.00	0.00/0.13	0.00/0.26	0.10/0.78	0.19/1.20	1.12/2.25	1.04/3.30	1.62/4.28	2.19/5.25	2.34/5.12
Seattle	0.76/1.73	0.48/1.20	0.19/0.67	0.18/0.78	0.18/0.90	0.62/1.55	1.07/2.20	1.70/2.85	2.32/3.50	3.07/4.55	3.82/5.60	4.00/5.74	4.17/5.80	4.14/5.57

T—Traces (Less than 0.005 inches) † Lexington

Mean temperature range in 20 cities, in degrees F.

Table shows range observed 25% of time. Mean temperature higher 37.5% of time, lower 37.5% of time.
Computed by U. S. Weather Bureau (based on historical records of actual temperature)

City	June	Mid. June-Mid. July	July	Mid. July-Mid. Aug.	Aug.	Mid. Aug.-Mid. Sept.	Sept.	Mid. Sept.-Mid. Oct.	Oct.	Mid. Oct.-Mid. Nov.	Nov.	Mid. Nov.-Mid. Dec.	Dec.	Mid. Dec.-Mid. Jan.
Atlanta	77.3/78.1	78.5/79.3	79.0/79.9	78.9/79.9	78.0/79.1	76.3/78.1	72.9/75.4	68.2/70.2	62.3/63.8	56.6/58.2	51.1/52.7	46.6/48.4	44.0/46.0	48.3/50.3
Baltimore	72.5/73.8	75.2/76.6	76.2/77.5	75.5/77.3	73.6/75.7	71.1/73.3	67.1/69.4	62.2/64.4	56.4/58.3	50.9/52.6	45.6/47.0	40.2/42.0	35.8/37.8	34.2/36.1
Birmingham	76.8/78.1	78.4/79.7	78.9/80.0	79.0/80.3	78.5/79.8	76.6/78.5	73.3/75.6	68.5/70.7	62.2/64.2	56.2/58.5	50.7/58.2	46.5/48.9	44.3/46.5	43.4/46.1
Boston	66.3/68.1	69.6/71.1	71.7/73.0	72.1/73.4	70.9/72.1	67.6/69.2	63.3/65.4	58.9/61.0	54.2/56.2	49.3/51.3	43.6/45.6	36.8/39.2	31.2/34.0	28.9/31.9
Chicago	68.0/71.2	71.6/74.0	73.7/75.1	73.8/75.4	72.0/73.7	68.8/70.7	64.5/66.7	59.3/61.7	52.8/55.3	45.9/48.6	38.6/41.5	31.2/35.0	25.7/30.3	23.7/28.5
Cincinnati	71.2/73.0	73.4/75.2	74.1/75.8	73.9/75.7	72.5/74.4	70.2/72.1	66.5/68.4	61.2/63.3	54.9/57.1	48.6/50.9	42.0/44.5	35.9/39.1	31.4/35.2	30.1/34.4
Cleveland	68.2/70.2	71.2/73.0	72.7/74.2	72.5/74.2	70.9/72.7	68.5/70.6	64.7/67.1	59.5/61.8	53.5/55.6	47.1/49.3	40.5/42.7	34.3/37.2	29.3/32.9	27.3/30.9
Dallas	81.1/82.2	83.3/84.6	84.5/86.4	85.6/87.3	85.1/86.7	82.3/83.9	78.1/79.7	73.8/75.1	68.5/69.4	61.4/63.1	54.3/56.7	49.9/52.3	47.0/49.3	44.8/47.1
Denver	65.4/67.5	69.7/71.5	72.1/73.7	72.5/74.0	70.8/72.2	67.3/68.6	62.2/63.4	56.7/58.3	50.8/52.8	44.5/47.2	38.0/41.4	33.5/36.7	30.5/33.5	28.3/31.4
Detroit	67.3/69.4	70.6/72.1	72.5/73.5	72.3/73.6	70.5/72.0	67.5/69.5	63.0/65.6	57.8/60.2	51.9/54.1	45.8/47.9	39.2/41.1	32.9/35.3	27.9/30.9	25.6/28.5
Kansas City	74.2/76.0	78.0/79.6	80.0/81.5	80.2/81.8	78.4/80.1	74.6/76.6	69.7/71.9	64.4/67.0	58.1/61.2	50.7/53.9	42.6/45.9	36.7/40.1	32.4/35.9	30.4/33.0
Los Angeles	63.9/65.4	65.4/67.0	66.9/68.4	67.5/68.9	67.4/68.6	66.8/68.1	65.9/67.3	64.4/65.9	62.7/64.2	60.5/62.1	57.9/59.8	56.5/58.2	54.9/56.5	53.4/54.8
Minneapolis	66.6/69.1	70.3/72.5	72.9/74.9	73.2/75.0	70.8/72.3	66.3/68.4	61.0/63.6	55.5/58.3	48.8/51.7	40.6/40.3	30.9/36.0	22.5/28.1	16.2/22.3	13.8/18.4
New Orleans	79.9/80.9	81.0/81.9	81.4/82.3	81.8/82.7	81.8/82.7	80.8/81.9	78.5/79.7	75.1/76.5	70.5/71.9	64.6/66.8	59.0/61.9	56.0/58.5	54.6/56.8	53.2/56.0
New York	70.4/72.2	73.6/75.0	75.2/76.3	75.1/75.5	73.6/74.9	71.0/72.5	67.4/69.0	62.7/64.3	57.0/58.6	51.8/53.2	46.5/47.9	40.2/42.3	34.6/37.5	32.5/35.2
Philadelphia	71.5/73.1	74.1/75.4	75.5/76.6	75.1/76.3	73.3/74.5	70.6/72.1	66.8/68.5	61.6/63.5	55.6/57.6	50.3/52.3	45.3/47.2	39.9/42.0	35.1/37.3	32.7/35.4
Pittsburgh	67.4/69.7	70.2/72.0	71.4/72.8	71.0/72.4	69.3/70.9	67.2/68.9	64.0/65.9	58.8/60.9	52.0/54.4	46.2/48.2	40.3/42.0	34.0/36.4	29.5/32.6	27.8/31.0
St. Louis	73.5/76.2	76.9/79.0	78.7/80.2	78.5/80.1	76.7/78.5	73.6/75.6	69.1/71.2	64.0/6.63	58.1/60.5	51.0/53.9	43.6/46.9	37.6/41.2	33.3/37.1	30.9/35.1
San Francisco	58.8/60.5	59.6/61.0	59.7/60.9	59.5/60.7	60.1/61.2	60.9/62.2	61.3/62.8	60.4/62.0	58.5/60.2	57.9/59.9	53.8/55.0	50.9/52.3	48.7/50.2	47.1/48.9
Seattle	59.3/60.4	61.7/62.7	63.6/64.6	63.8/65.0	62.7/64.1	60.8/62.0	58.0/59.0	54.8/56.1	51.0/52.5	41.8/43.3	43.1/44.5	41.0/42.4	39.4/40.7	37.7/39.0

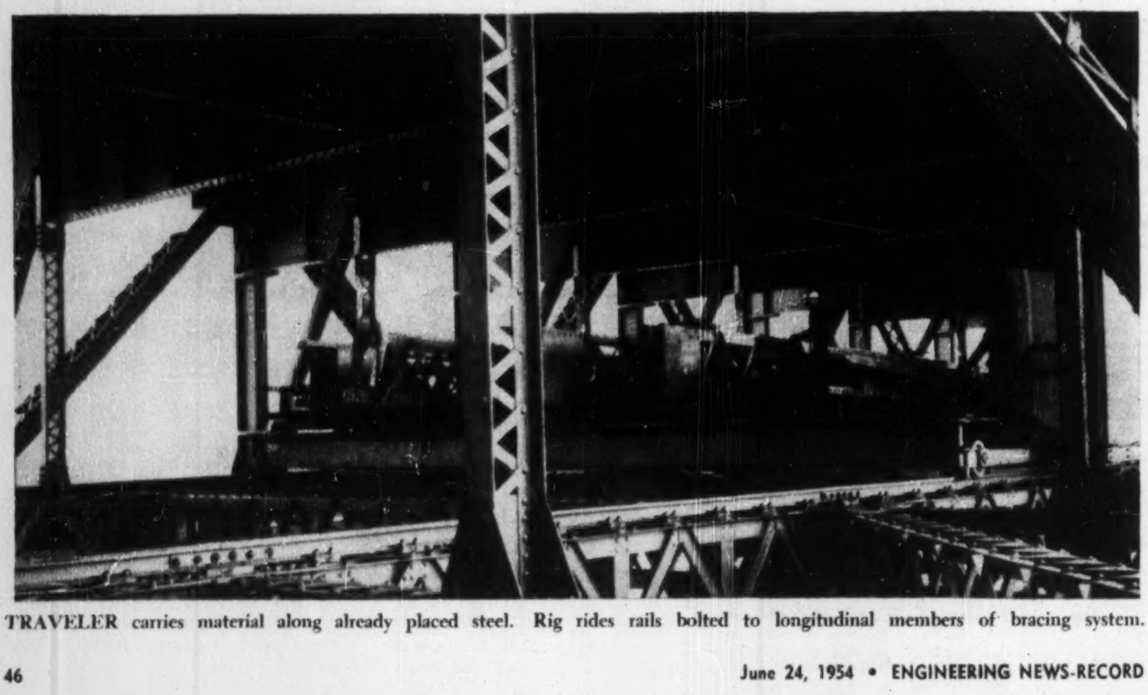


BOTTOM LATERAL SYSTEM installed between the lower chords of the stiffening trusses of the Golden Gate Bridge transforms the deck structure into a rigid box. Chicago boom (circled) raises the latticed horizontal members from bridge pier as first step in installing the 4,700 tons of steel.

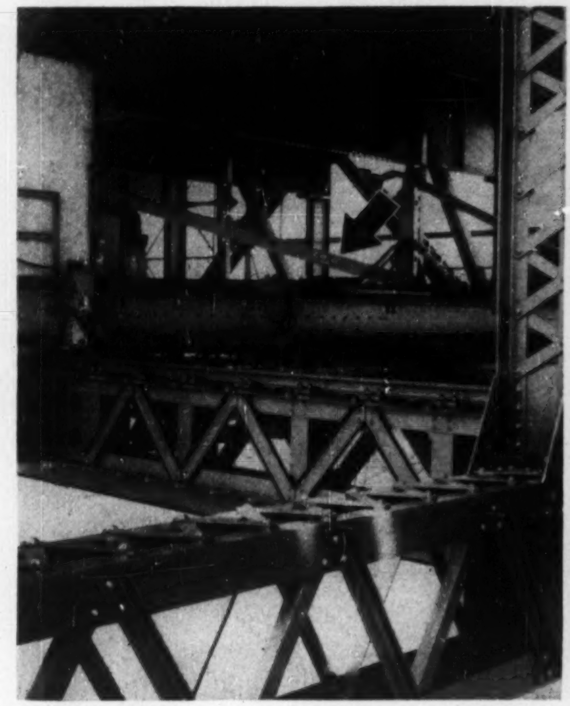
Golden Gate Bridge is stiffened against wind vibration

More than 50% of the new bottom lateral stiffening system on the Golden Gate Bridge's center span is now in place. And workmen for Judson Pacific-Murphy Corp., contractor on the $3-million job, are adding more every day. The bottom lateral system was recommended by a board of engineers (ENR Jan. 22, 1953, p. 22) to give the bridge additional resistance to vibrations induced by wind.

The 4,700 tons of steel being placed requires 190 tons of high tension bolts for its connections. According to Bethlehem Pacific Coast Steel Corp., bolt suppliers, this is the largest single order of high tension bolts placed in the West. And since the bolts are full tightened immediately, each new steel member added increases the bridge's stability.



TRAVELER carries material along already placed steel. Rig rides rails bolted to longitudinal members of bracing system.



STEEL IS PLACED by stiffleg derrick (arrow) mounted on second traveler. Identical equipment works the steel stiffening system out from each pier toward the center of the span.

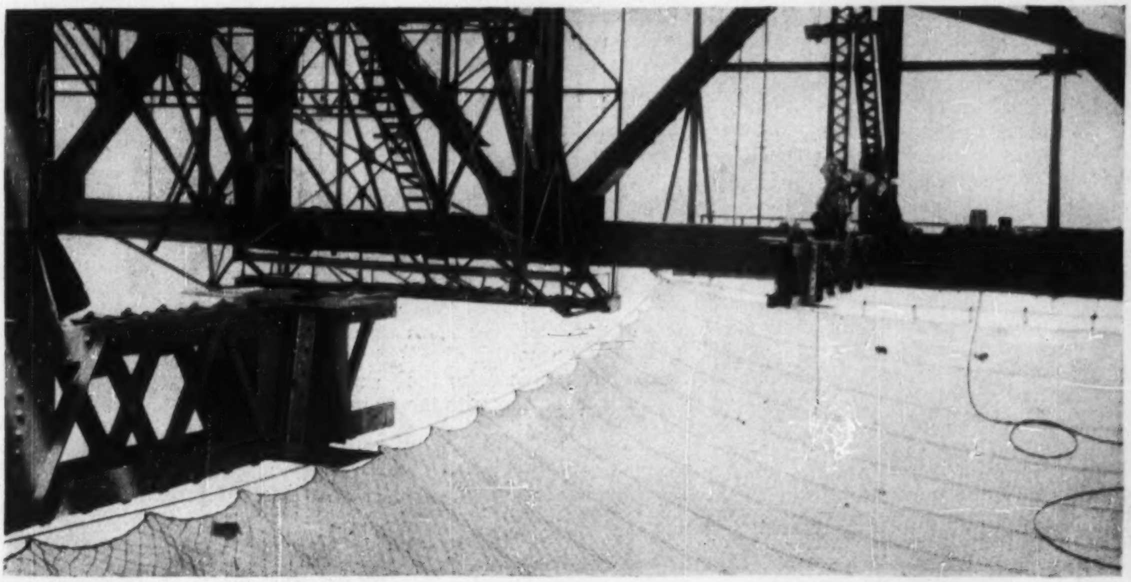
TIGHTNESS TESTED with torque wrench on high tension bolts. Job includes 190 tons of bolts—perhaps the largest quantity used on a single job. Calibrated impact wrenches tighten bolts.

Work is proceeding simultaneously from both piers to the midpoint. After the center span is stiffened the side spans will be reinforced—and work will proceed from the main piers landward.

Steel members are brought to the job by barge. Here, they are transferred to the bridge pier by truck crane mounted on the pier. A Chicago boom on a traveler hoists and transfers them to a work traveler that takes them to the work area.

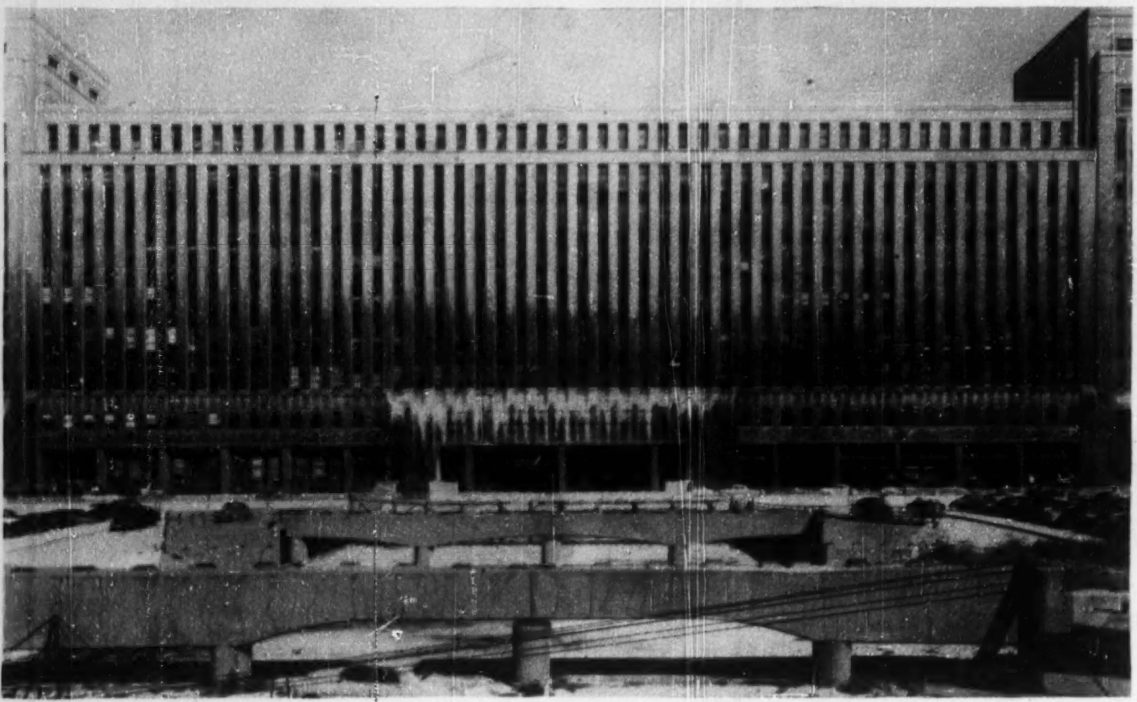
A new-type safety net is another feature of the work. Developed by Pedley-Knowles & Co. of San Francisco, it involves ⅜-in. manila rope woven in 6-in. squares. Complete panels are made of one continuous rope. Panels are laced together, and all fastenings are made with Fiberglas "roving" impregnated with plastic resin. Finally, the completed net has ¾-in. edge ropes. The nets are 52 ft long and 110 ft wide—the width of the bridge.

The stiffening system was designed by Clifford E. Paine, consulting engineer for the Golden Gate Bridge and Highway District.



SAFETY NET of new type design protects workmen.

MUNICIPAL



CHICAGO'S CONGRESS STREET SUPERHIGHWAY will pass through the U. S. Post Office arcade provided 20 years ago.

Chicago builds 8-lane superhighway through 20-year-old post office

Dick Van Gorp
Chief Engineer
Department of Public Works
Chicago, Ill.

Building Chicago's Congress Street Superhighway across the heart of the city—for eight miles from the lakefront to the western city limits—presents a number of difficult problems in design and construction.

But one of the tougher problems will be that of building this eight-lane modern expressway through the U. S. Post Office building despite the fact that provisions were made for passing the superhighway through the building at the time it was built, in 1933.

The post office building is a 13-story structure that hugs the west bank of the South Branch of the Chicago River, directly on line with the Congress Street route. Located about 250-ft from the river bank, it has a two-block frontage on South Canal St., and a 344-ft frontage on West Van Buren and West Harrison streets.

The problem of passing the superhighway through the post office building involves the separation of highway traffic from internal post office traffic.

• Wide highway arcade—Congress Street superhighway already had been assured when the post office was built more than 20 years ago, and that it would some day pass through the building had been established. Consequently the building was constructed with a 120-ft wide, by 22-ft high arcade extending completely through its center to accommodate the superhighway.

Beyond this, however, the fact that a superhighway was to utilize the arcade was overlooked. Mail truck ramps were built in the south portion of the building, extending from first to the second floors, and connecting with the arcade area. As a result, access to these ramps at present can be achieved only from the roadway area in the arcade. Now it will be necessary to establish other means of access to the ramps in order that the arcade may be used for its original purpose—as right-of-way for the superhighway.

• Federal-city project—Prolonged discussion between the city and federal officials stemmed from this predicament, resulting in plans being developed for necessary alterations. An agreement has been approved and signed by both parties for sharing the costs of alterations.

The government will handle the building alterations, and the city will build the superhighway. Estimated cost of alterations will be $1,328,000, of which the United States will pay $728,000 and the city $600,000.

• Eight traffic lanes—The highway through the arcade will consist of an east and a west roadway, each 38-ft, 6-in. wide for four lanes of traffic, and separated by a 6-ft, 10-in. median. The roadbed will be a 7-in. reinforced concrete slab, set on reinforced concrete beams and columns that will raise the new expressway pavements about 5-ft above the present traffic area in the arcade. The new roadways and their supports will rest upon the present structure of the post office building.

The roadways through the post office will be enclosed in glazed hollow tile walls, to separate them completely from post office operations. There will be a 15-ft clearance between the sur-

(*Continued on page 51*)

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Yes, gentlemen, there's more fish caught with wire rope than ever nibbled at a baited hook. Satisfying America's appetite for nutritious seafood is a stupendous job, calling for fleets of fast, powerful trawlers that net their catches in prodigious quantities. To hold and haul in the heavily laden nets, the fishing industry annually uses millions of feet of wire rope.

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WICKWIRE ROPE
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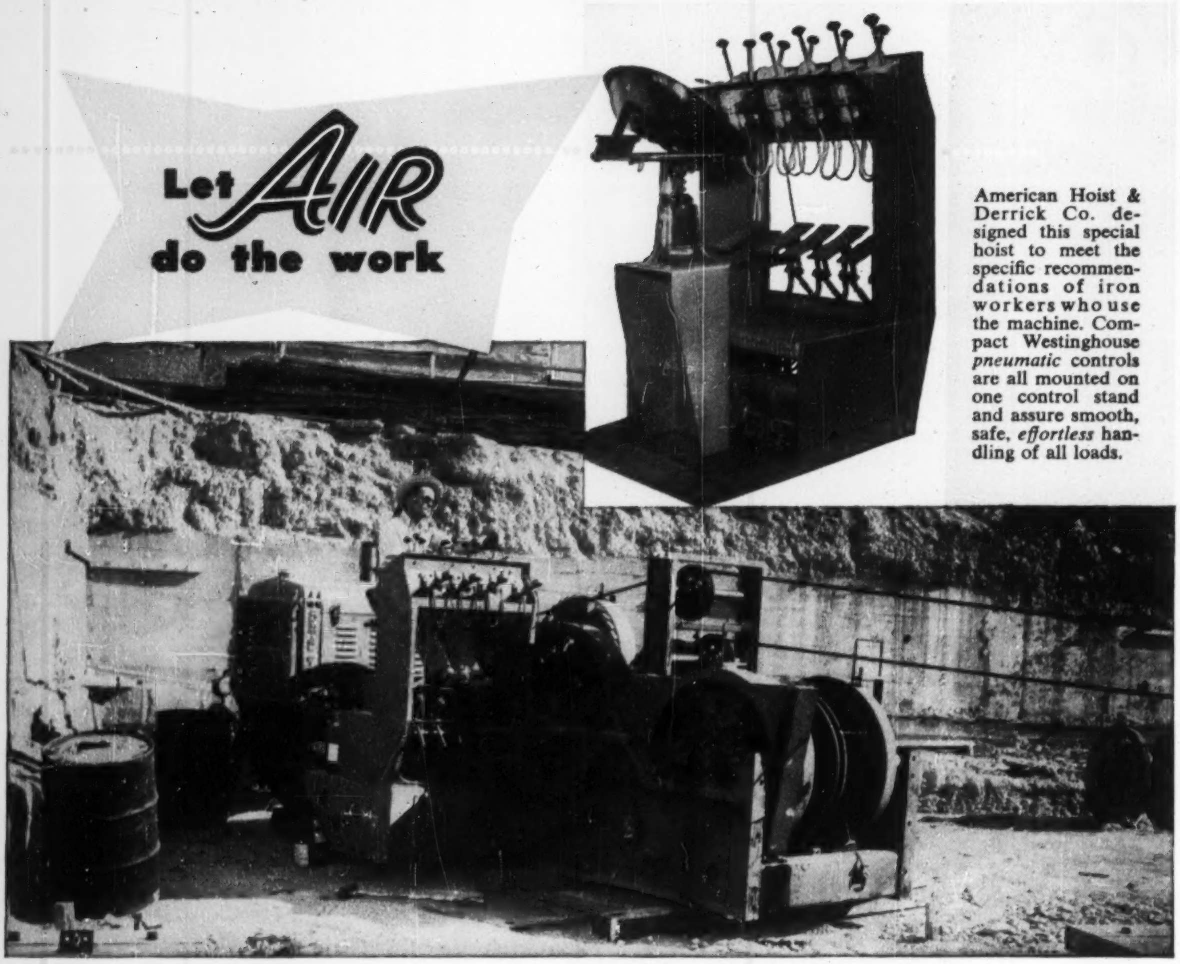

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With Westinghouse pneumatic controls, you get faster, more automatic operation, you reduce operator fatigue, you obtain *smooth* control that minimizes wear and tear on your machines. You can use these controls wherever you need an accurately controlled source of linear power. Present applications include conveyors, presses, bagging machines, wire drawing equipment, aluminum foil mills, and paper machines, as well as diesel engines, and many types of power takeoff devices.

For complete information, write to Westinghouse Air Brake Co., Industrial Products Division, Wilmerding, Pennsylvania.

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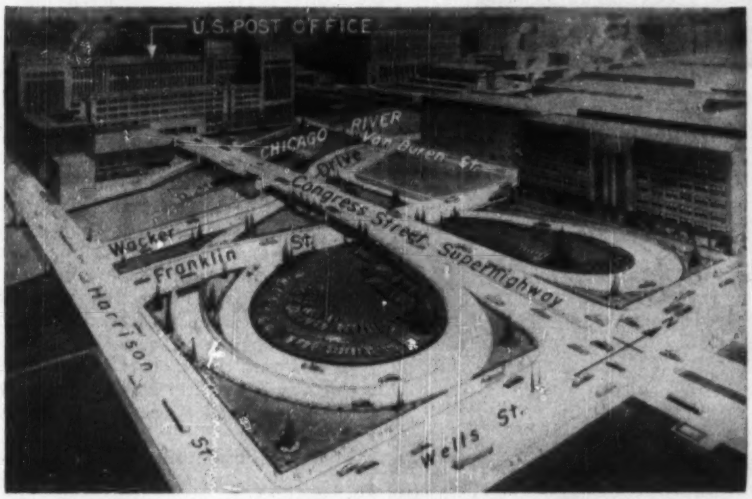

(Fig. 2) EMERGING FROM THE POST OFFICE, the superhighway will cross the river on a $5-million double-leaf twin bascule bridge, and pass through Wells St. Plaza—giant traffic distributor for the north and east sides of the central business district.

face of the roadways and the ceiling of the arcade.

To provide access to the ramps that now connect with the arcade, a new driveway will be built, solely for post office use. It will be in the space now occupied by the south sidewalk in the arcade. This area, originally intended to be used for the superhighway, will be relinquished by the city for post office use.

- **Subway beneath highway**—There is another structural engineering factor which had to be considered in the project. It involves the construction of subway tubes directly beneath the superhighway.

The present Milwaukee-Dearborn-Congress Street subway ends under the west bank of the South Branch of the Chicago River. It is to be extended to the west side of the city via the median strip of the Congress Street Superhighway as an "open-cut" subway. This extension will necessitate tunneling and structural work under the superhighway passing through the arcade.

The feature of this job is that it will require the cutting off of 8 caissons supporting a portion of the huge building since they are in the path of the tubes to be built. Plans to cope with this provide for the transfer of building loads in the area to cribbing on each side of the severed piers. When tube construction is completed, the cribbing will be removed and the building weight transferred to the roof of the reinforced concrete tube.

Bids have been taken for the subway project and work is expected to be in full sway during the year on both the subway and highway projects through and under the post office building.

Los Angeles inspectors face bribery charges

Arraignment is pending in Los Angeles superior court of three Los Angeles Department of Building and Safety plastering inspectors and a hod-carriers union official indicted by a county grand jury on bribery charges.

The charges resulted from complaints by several contractors, two of whom said they had been forced out of business by pay-offs demanded by inspectors for job approvals (ENR June 10, p. 54).

The district attorney's office, which presented the charges to the grand jury, said that investigation of inspectors would continue and that there were indications that graft was widespread and not limited to plastering inspectors.

Building and Safety Director Gilbert E. Morris strongly discounted the possibility of widespread dishonesty. But he observed that in the operation of a large department there was always the possibility of a few dishonest individuals slipping through the most careful screening. He said the department was investigating the situation thoroughly, and would deal promptly with any shady practices uncovered.

Two of the plastering inspectors—Joseph Stewart and Vincent Walsh—were fired by Morris for refusing to testify before the grand jury. The third

(*"Municipal" continued on p. 52*)

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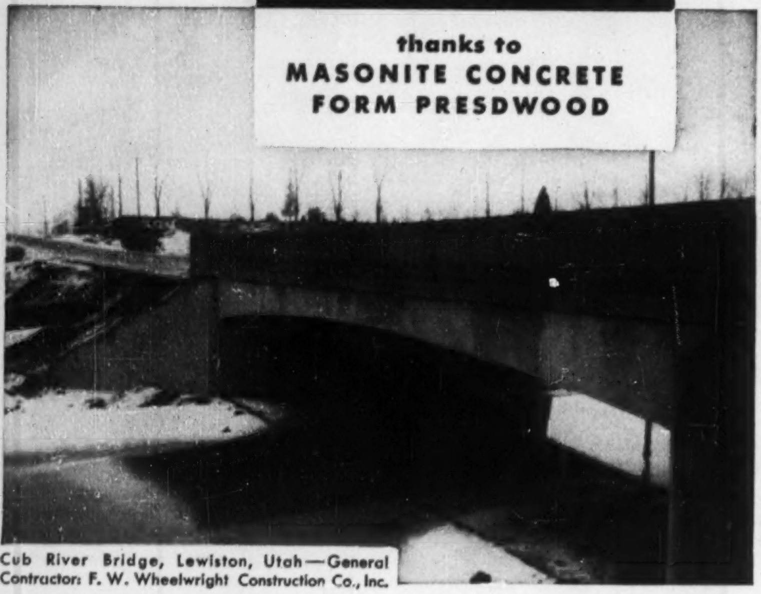
—says F. W. WHEELWRIGHT, of Wheelwright Construction Company, Inc.

thanks to
MASONITE CONCRETE FORM PRESDWOOD



Cub River Bridge, Lewiston, Utah—General Contractor: F. W. Wheelwright Construction Co., Inc.

"By using the screen side of your board, stoning time on this bridge was cut in half, and was accomplished with unskilled labor."

Mr. Wheelwright further reports that Presdwood® box forms for bridge handrail posts are simpler to build, and strip out a great deal easier than lumber frames, thereby causing less damage to the delicate edges of the concrete.

Once you discover the substantial savings that these strong, all-wood hardboard panels offer for making smooth-surface concrete, you won't be satisfied with ordinary materials. Send the coupon now for full and free information.

Save Two Ways with Masonite Presdply!

Try Presdply on your next job and get both these money-saving advantages: (1) No backing needed, for Presdply has the structural strength of plywood and the smooth, texture-free surface of Presdwood. (2) Smooth concrete will need minimum rubbing, will quickly be ready for painting. Send for your free sample.

NATURALLY STRONGER WITH LIGNIN

PRESDWOOD WOOD MADE BETTER

MASONITE® CORPORATION Dept. ENR-624, Box 777, Chicago 90, Ill.

Please send me sample and your booklet on Concrete Form Presdwood.

Name...
Firm...
Address.................................City................Zone....
County..........................State.............................

"Masonite" signifies that Masonite Corporation is the source of the product

—Earl C. Groves—was placed under suspension pending investigation of the charges.

In the past the reputation of the department with contractors has been good—notably free of bribery accusations.

• **Jet brakes for aircraft**—Runways designed for aircraft of pre-jet days will be adequate to handle jet transports, bombers and fighters, according to a recent Boeing Airplane Co. announcement. It has developed a new jet engine brake that is attached near the engine tail pipe of the aircraft to deflect forward thrust of jet gases to provide a braking effect similar to that of reversing propellers of older type craft.

• **Expand campuses via Title I**—Twenty institutions of higher learning in eight U. S. cities are making plans for the use of once-blighted land to expand their campuses. According to the National Association of Housing and Redevelopment Officials, they are privately purchasing land cleared by local agencies with federal aid as provided by Title I of the Housing Act of 1949.

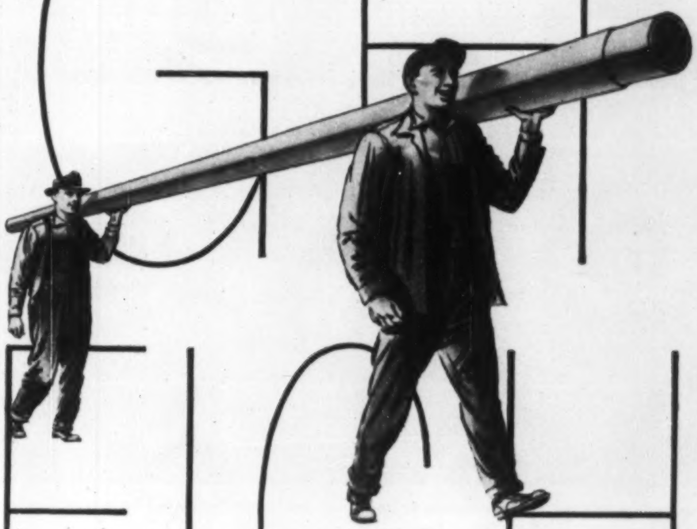
• **Oil revenues will build city structure**—Long Beach, Calif., voters recently gave 2-1 approval for use of more than $4.5 million of the city's Tidelands Oil revenues for a public safety building. Construction on the building, which will house police headquarters, jail, fire department and other agencies, must await outcome of litigation determining whether the oil revenues may be used for projects other than harbor improvements.

• **Denver expressway firmly planned**—Increased federal-aid funds beginning next year, and anticipated boosts in state revenues will allow a start within three years on Denver's planned 28-mi. east-west highway. Originally planned for 1959, the $25-million project is now scheduled for 1957.

• **Jacksonville, Fla., parking**—Plans are complete for construction of a $4-million municipal parking lot to accommodate 1,838 cars. Land acquisition will cost $1,265,000. The circuit court has validated issuance of bonds based on receipts from parking fees and parking meters.

• **Albany parking study**—Integration of municipal parking facilities with the design for a riverfront highway in Albany, N. Y., is under study. Provision for 1,250 cars will be made at a total estimated cost of $1 million.

LIGHT WEIGHT



"CENTURY"® PIPE

QUALITIES THAT MAKE "CENTURY" PIPE ECONOMICAL, TROUBLE-FREE, LONG-LIVED

1. NON-TUBERCULATING
2. NON-CORROSIVE
3. EXCEPTIONALLY STRONG
4. DURABLE
5. IMMUNE TO ELECTROLYSIS
6. TIGHT JOINTS
7. SMOOTH BORE
8. EASILY, QUICKLY LAID
9. LIGHT WEIGHT
10. LOW COST

except for the very largest diameters, can be handled easily without the use of cranes or other machinery. In many cases, two men can pass a length to the men in the trench or lower it by ropes. Thus the light weight of this modern asbestos-cement pipe effects many savings in labor and transportation costs, and materially speeds completion of the line.

Consider the many other distinct advantages of "Century" pipe and you'll see why more and more thrifty towns are choosing it—why it's the wise choice for your community, too!

Write for further information now.

KEASBEY & MATTISON COMPANY • AMBLER • PENNSYLVANIA

Nature made asbestos . . . Keasbey & Mattison has made it serve mankind since 1873

K&M best in asbestos ®

13
NO LEOMINSTER
TOWNSEND
NEXT RIGHT

One of five modern bridges on Massachusetts Route 2, near Leominster, supported on Mayari R corrosion-resistant bearings.

why they chose CORROSION – RESISTANT MAYARI R for bridge bearings

Up in the northern part of the state, Massachusetts' rebuilt Route 2 runs between Concord and Westminster. At Leominster, it passes under four steel-girder bridges (and over a fifth one) supported on bearings of Mayari R low-alloy, high-strength steel. The bearings were welded from Mayari R plates ranging in thickness from ¼ in. to 3⅜ in. Few motorists of today will live to see corrosion knock these bearings out!

For a number of years, Massachusetts has chosen Mayari R for bridge bearing material, because of its superior resistance to corrosion. Tests conducted over a 17-year period show that Mayari R has 5 to 6 times more resistance to atmospheric corrosion than plain carbon steel, and 2 to 4 times more than copper steel.

Moreover, Mayari R is easy to weld by all the usual methods. Regular welding equipment can be used, and good welding speeds maintained.

With a yield point of 50,000 psi, Mayari R can be used in much lighter sections than carbon steel to provide the needed strength. Or it can be used in the same thickness for greater strength. It holds paint up to 80 pct longer, depending on the type of paint used.

Full details on this versatile steel are outlined in our new Catalog 353, along with dozens of application photographs. We'll be glad to send you a copy; just get in touch with the nearest Bethlehem office.

A few of the welded Mayari R rockers fabricated by Bethlehem for the rebuilt highway. Weldability, as well as resistance to corrosion, make Mayari R desirable in applications of this kind.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

Mayari R *makes it lighter... stronger... longer lasting*

INTERNATIONAL

Report on aqueduct leaks in Brazil

In a final and long awaited report the mayor's office of the Federal District in Rio de Janeiro recently brought to a close a controversial case of four leaks in the "second aqueduct" supplying water to Brazil's capital city.

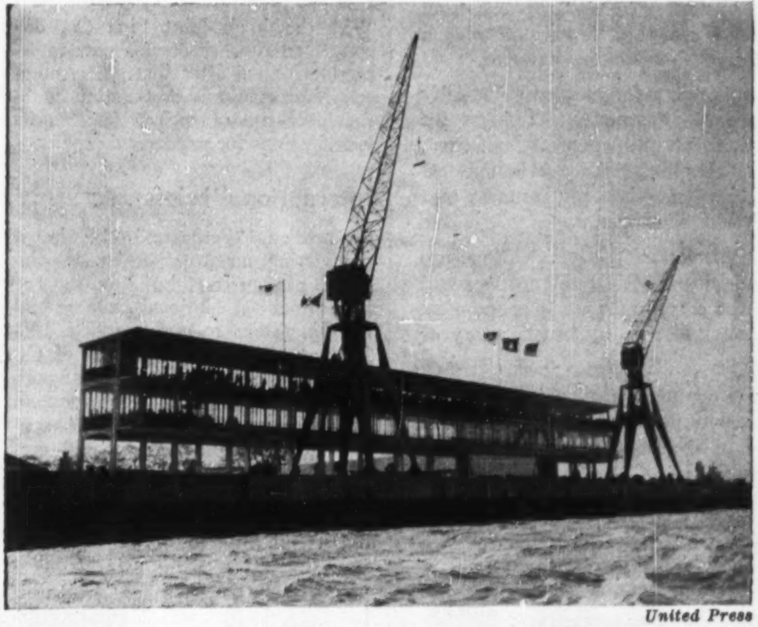
The study, which followed other laboratory reports made by Brazil's leading research organizations, reached these conclusions:

1. The aqueduct, made of prestressed concrete pipe, is functioning satisfactorily, supplying Rio with close to 20% more water than originally calculated; there have been no additional leaks.
2. The Lock Joint Pipe Co. joints used are efficient and the laying of the 69-in. pipe is correct.
3. Pipelaying and connections followed rigorously the contract and the best specifications of the time.
4. The joints leaking—four joints in 14,740 lengths of pipe now in service five years—ruptured as a result of stress corrosion of some coils of stressed steel in the pipe.
5. The steel which suffered the stress corrosion was "oil tempered steel spring wire", ASTM specification A 229-41.
6. This same steel is generally in good condition elsewhere, as nearly as can be determined. It appears that stress corrosion occurs only at points where an aggressive soil has in some way affected steel wire which had developed surface fissures.
7. If, in the future, any other leaks in the pipes are noted, it will be simple to repair them without interrupting flow of water to the city.

Its study concluded, and satisfied beyond expectations with performance of the second aqueduct, the city is now proceeding with the new aqueduct of Guandu, also being constructed by Lock Joint Pipe Co.'s licensee, Sociedade Industrial Tetracan, of Sao Paulo and Rio.

The third aqueduct will be constructed of prestressed concrete embedded cylinder pipe developed several years ago by the Lock Joint Pipe

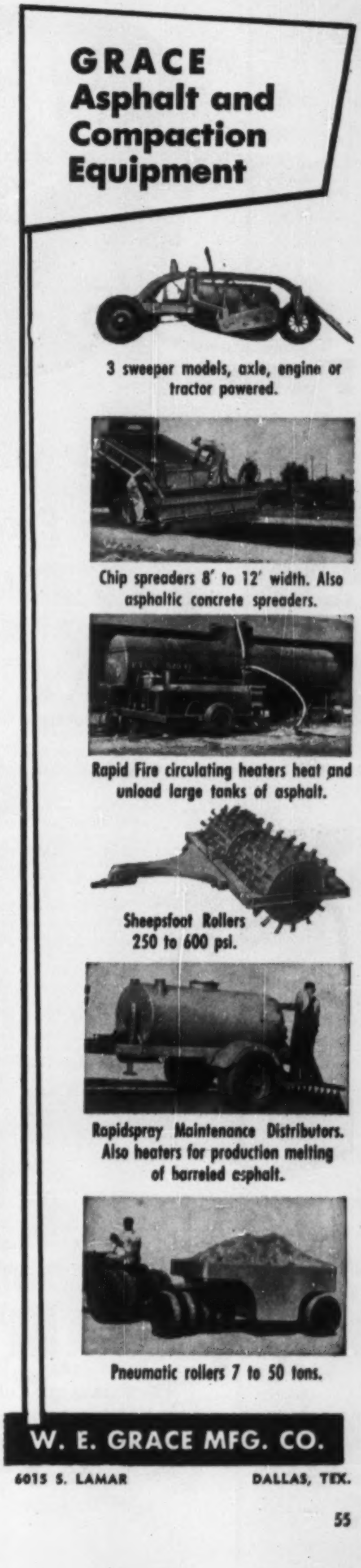
(*Continued on page 56*)



United Press

New wharf handles 1,000 passengers in 2 hrs

Composed of a reinforced concrete frame with glass walls, a new landing wharf at Cuxhaven, Germany, at the mouth of the Elbe River, has proved its capacity to check in 1,000 passengers in two hours from the liner "Italia" during inauguration of the new structure. Huge four-legged steel gantries mounted on rails at the wharfside carry mobile cranes for fast cargo handling. Congested shipping at the mouth of the Elbe necessitates rapid cargo and passenger handling.



GRACE
Asphalt and Compaction Equipment

3 sweeper models, axle, engine or tractor powered.

Chip spreaders 8' to 12' width. Also asphaltic concrete spreaders.

Rapid Fire circulating heaters heat and unload large tanks of asphalt.

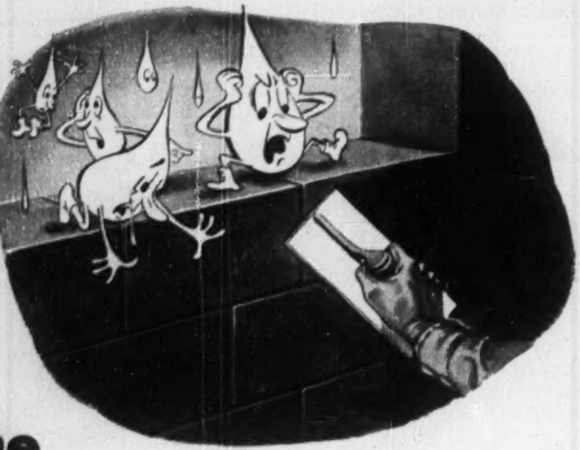
Sheepsfoot Rollers 250 to 600 psi.

Rapidspray Maintenance Distributors. Also heaters for production melting of barreled asphalt.

Pneumatic rollers 7 to 50 tons.

W. E. GRACE MFG. CO.

6015 S. LAMAR DALLAS, TEX.



Put the Damper on Dampness with Flintkote Protective Coatings

Clamp down on dampness *before* it gets inside and through masonry walls.

You can apply Flintkote Asphalt Mastics by trowel, brush or spray to the interior face of exterior walls above grade to prevent destructive moisture from entering.

You can protect walls and masonry below grade with these highly water-resistant coatings, too.

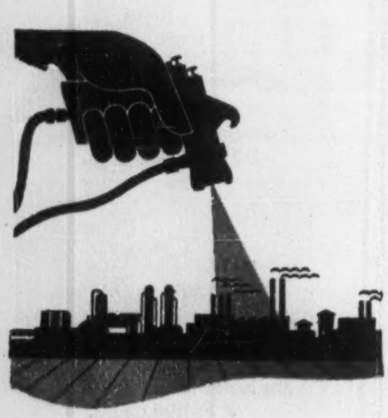
Another effective method of putting the damper on dampness is to spray Flintkote Binderseal* and Granules on exterior masonry surfaces. You get years of water- and weather-resistant protection *plus* a colorful, new-looking exterior.

And don't forget also to specify Flintkote Protective Coatings for steel, structural concrete, masonry, insulation materials . . . wherever resistance to weather, dampness and corrosion is needed.

Flintkote Protective Coatings are available in both asphalt cutback and emulsion types for ready economical application . . . by brush, spray or trowel.

For complete specifications and application data on Flintkote's wide line of coatings, see Sweet's Files. Or write us.

*Reg. U. S. Pat. Off.



Over 50 Years Specialized Experience at Your Service . . . by 'phone, mail or personal call. No obligation.

FLINTKOTE

The Flintkote Company, Industrial Products Division, 30 Rockefeller Plaza, New York 20, N. Y., 55th & Alameda Sts., Los Angeles 54, Calif.

The Flintkote Co. of Canada, Ltd.—Toronto, Ontario

Co. This is a modification of the prestressed concrete cylinder pipe used in the second aqueduct, in that a layer of concrete is placed between the steel cylinder and the steel prestressing wire. This modification has proved to be an exceedingly important development, particularly in regard to large diameter pipe and for lines operating under high pressures. The design prevents contact of the two types of metal which are under different degrees of tension and eliminates the possibility of an electrolytic action between them. Cold-drawn wire is being used in this aqueduct instead of the oil-tempered wire which was used originally.

• **Long an issue**—The history of the much publicized trouble in the second aqueduct goes back to the end of 1952, when it was found that the four leaks had developed in the aqueduct, all in the same general area. Repair of the leaks, necessitating interruption in the transmission of water for some days, called public attention to the aqueduct. Attacks against the Departamento de Aguas e Esgotos (DAE) of the Prefeitura do Rio (PDF) and its contractors became quite violent.

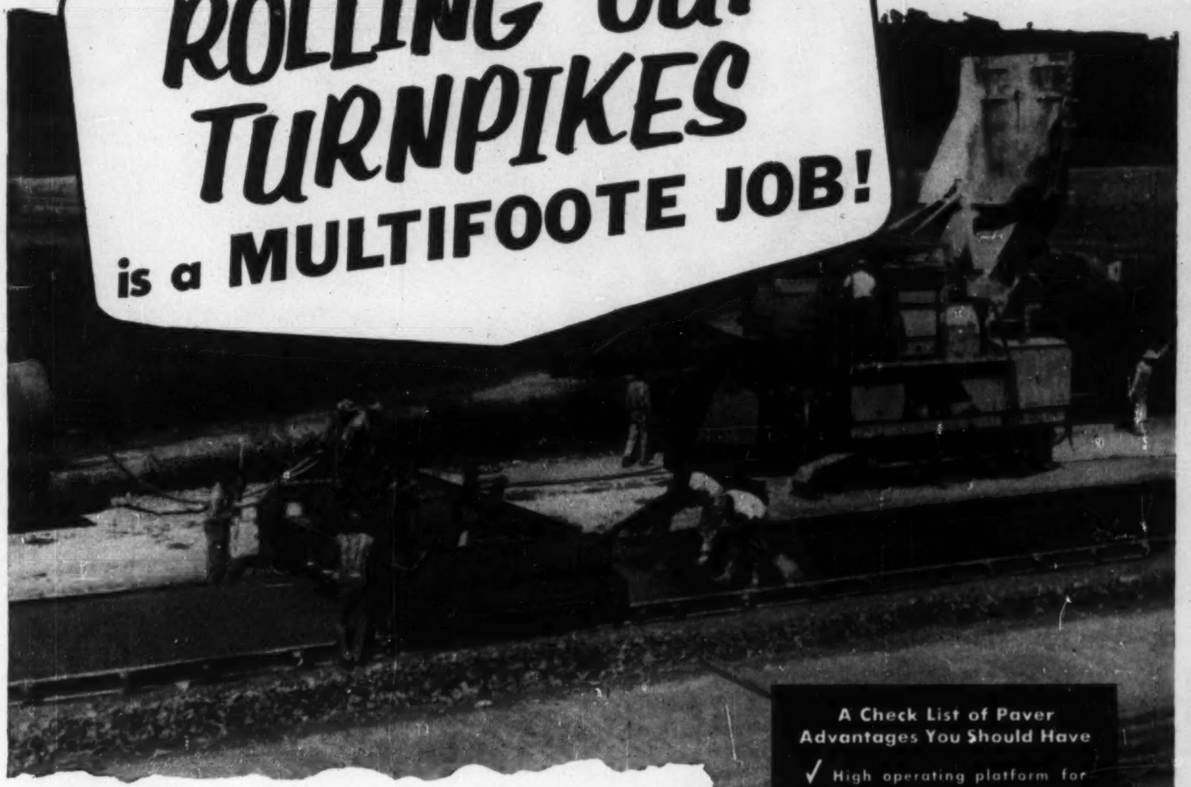
Stress corrosion of oil-tempered wire has been observed before, and in 1951 the Lock Joint Pipe Co. discontinued the use of this wire in its product. Soon after that, the American Water Works Association withdrew the use of such wire from its specifications for prestressed pipe.

International briefs . . .

• **Canadian "Pentagon"**—Canada is considering construction of a combined headquarters building for the Department of National Defense and is taking steps to appropriate a 100-130-acre site on the outskirts of Ottawa. In addition to a main headquarters building, an underground system of vaults and offices will be constructed. Preliminary estimated cost of the project: $12 million.

• **Clean-up campaign**—A provincial bill setting up a $65-million sewerage and drainage program for the lower mainland area of British Columbia has been drafted and is awaiting approval of the 10 municipalities involved. The program—devised to provide sanitation facilities for the next 45 years—calls for spending $45 million on sewerage and $20 million on storm water drainage to meet needs of an expected area population of 1.5 million.

ROLLING OUT TURNPIKES is a MULTIFOOTE JOB!



THE highly competitive bidding, the many miles of travel, the need for fast output, make ease of operation, crawler endurance, water capacity, simplicity of maintenance and other paver advantages important on Turnpike work. MultiFoote Pavers have proved their ability to roll out Turnpikes.

MultiFoote shovel type crawlers with their self-cleaning action stand up under miles of travel. Large, extra tank capacity reduces water delays. Simplicity of design makes upkeep easy and cuts "down" time and many other advantages assure fast output.

These are just a few of the reasons why there are more MultiFoote Pavers sold each year than any other make and why there are more MultiFoote Pavers in service than any other make. MultiFoote advantages have established records for output and mileage laid down on extensions of the Pennsylvania Turnpike.

If you are bidding on Turnpike Work you need the proved depenabilty of the MultiFoote. Ask for details on MultiFoote advantages.

A Check List of Paver Advantages You Should Have

- ✓ High operating platform for faster, safer operation;
- ✓ Plenty of water capacity
- ✓ No pressure water tank—unaffected by line pressure or grade
- ✓ Rotary power discharge—faster in cleaning the drum
- ✓ Double Cone Drum with scouring action—easier to keep clean—less tendency to "build up"
- ✓ Wide skip—easy for trucks—easy to re-reeve—takes less cable
- ✓ Shovel-type crawlers and side frames
- ✓ HighLift Boom easily installed for off-highway work
- ✓ Other advantages for easier upkeep, faster output and easier operation

MULTIFOOTE CONCRETE PAVER

FOR EVERY PLACE CONCRETE MUST BE POURED

BLAW-KNOX COMPANY
FOOTE CONSTRUCTION EQUIPMENT DIVISION
1922 State Street
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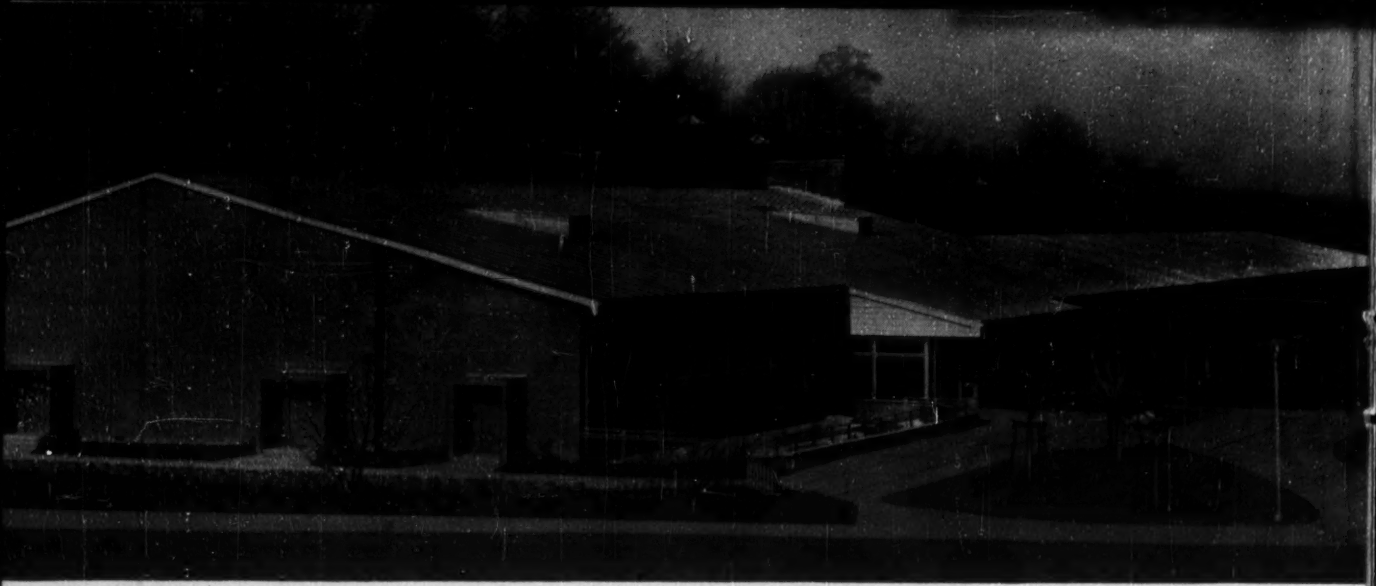
BLAW-KNOX



The Roof of the new Walnut Grove School, West Mifflin Borough, Allegheny County, Pa., is USS Stainless Steel. Architects: Button and McLean, Pittsburgh, Pa. Contractor: Nicholas Le Donne, Clairton, Pa. Roofing contractor: Limbach Company, Pittsburgh.

New Walnut Grove School has a maintenance-free roof of

● The school board of West Mifflin Borough, Allegheny County, Pennsylvania, took care of roof maintenance almost permanently when the new Walnut Grove School was built. They did it by specifying a roof of long-lasting USS Stainless Steel.

The roof is approximately 385 feet long and 75 feet wide. The Stainless Steel roofing panels have a satin-type architectural finish. They are of 26-gage material fabricated into a standing seam panel 27⅜" wide by 12 feet long.

Stainless Steel's superior corrosion resistance, combined with its almost complete freedom from maintenance, fits it for years and years of satisfactory service. It has excellent reflective properties, and features needed strength with light weight.

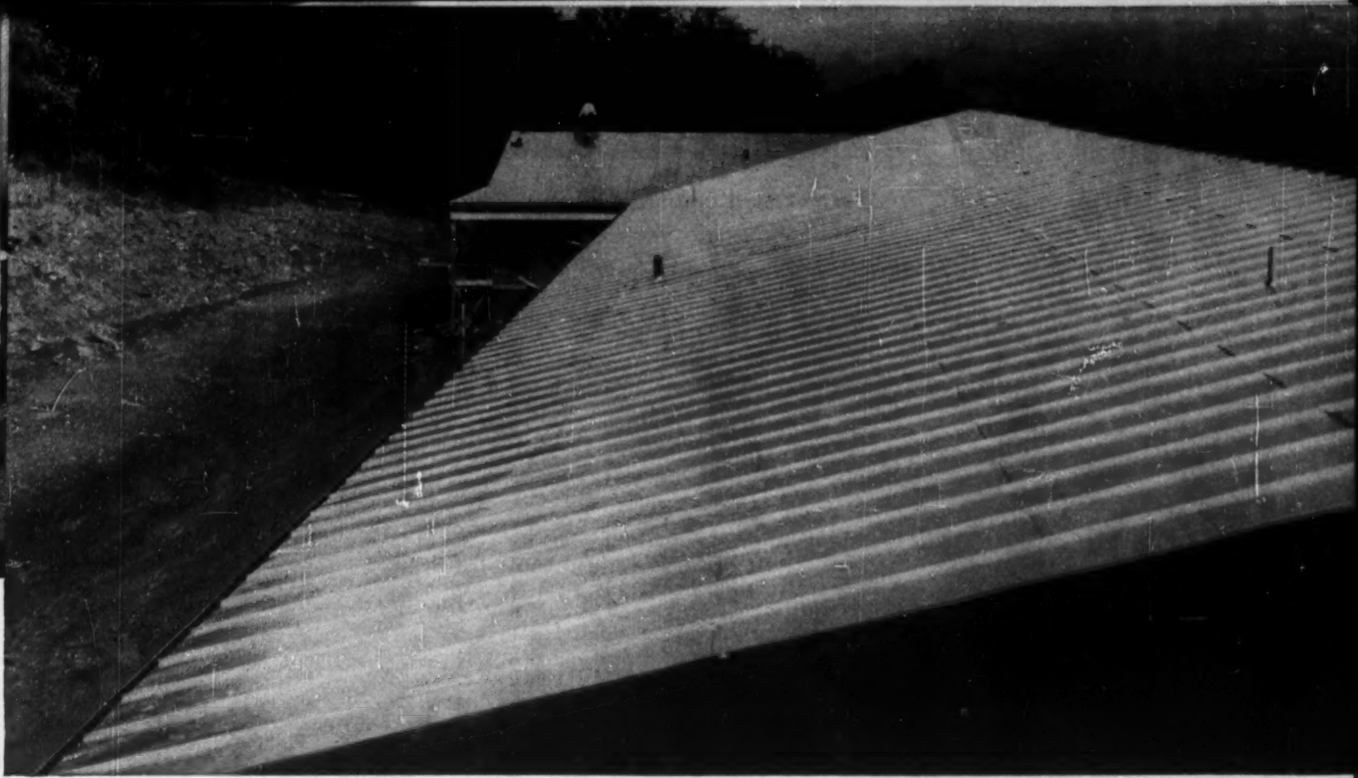
The Stainless Steel roofing sheets are laid on double-coated, 35 pound asbestos felt. Each cross seam is caulked and the roofing is locked into the Stainless Steel gutter. Gutters and downspouts are of 22-gage Stainless Steel, architectural finish.

In addition, all attachments, supports, hanger bars, bolts and screws are Stainless Steel.

Stainless Steel is finding wide favor with school architects, not only for roofing, but for exterior walls as well when used in the form of insulated panels. Of course, its wonderful possibilities for interior trim are also being used to advantage.

If you have a new school in the planning stage, now is the time to think in terms of Stainless Steel and its many benefits. And think in terms of perfected, service-tested USS Stainless Steel. For more information, mail the coupon below. If you like, we will be pleased to have one of our representatives call.

◀ **Installing** the standing-seam USS Stainless Steel roof on the new Walnut Grove School. The roof was laid on double-coated asbestos felt with each cross seam carefully caulked before the upper sheet was installed.



Stainless Steel

United States Steel Corporation
Room 4398, 525 William Penn Place
Pittsburgh 30, Pa.

Please send me information on architectural use of Stainless Steel.

Name.................. Title.......

Address............................

City.................. State........

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COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO · NATIONAL TUBE DIVISION, PITTSBURGH
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USS STAINLESS STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS · USS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

UNITED STATES STEEL

what's NEW in Engineering

A new free-hand electric bandsaw is said to cut through metals "like a knife through butter". It is light enough (16 pounds) to be used free-hand in any position, and the power driven unit is claimed to be the first completely portable unit of its kind. Slightly larger than a hand hacksaw, it is about 15 times faster.

* * *

On Puget Sound at Steilacoom, Kaiser Engineers designed and recently completed one of the nation's most modern aggregates plants to supply the growing demand for sand and gravel in the Pacific Northwest. A unique feature of the plant's construction was the erection of serpentine walls in the sand and gravel storage areas to eliminate dead space. The new plant's flexibility of operation is such that it not only can handle most common sizes of gravel, but also any other specific sizes ordered by customers. Its crushing and screening capacity is 375-500 tons per hour.

* * *

TO BE PUBLISHED

Conditioning of Water for Industrial Use is the title of a new book, written by Sheppard T. Powell being published by McGraw-Hill this month. This modern guide to water conditioning describes the various types of apparatus in detail, including design features, control required for efficient performance, cost of installation and operation and other pertinent information.

* * *

Whether it's designing an oil refinery, building a manufacturing plant or laying out a plant site, Kaiser Engineers undertakes the job with assurance because of the variety of talent within the organization. Successful experience in a wide field of design, engineering and construction tells the story. Call or write: Kaiser Engineers, Division of Henry J. Kaiser Company, Kaiser Building, Oakland 12, California.

MEN AND JOBS

Former civil engineer heads New York Central

Alfred E. Perlman, who was named president of the New York Central Railroad system in the recent spectacular change of management, is a civil engineer who gained national attention through his modernization of the maintenance operations of the Denver & Rio Grande Ry.

Born in St. Paul, Minn., in 1902, Mr. Perlman received his CE degree from M.I.T. in 1923 and began work with the Northern Pacific Ry., advancing to the position of roadmaster in 1927. He held that position until 1934, during which period he went to Harvard School of Business Administration, specializing in railroad administration.

In 1934 the Reconstruction Finance Corp. retained Mr. Perlman as a consultant for a special study of the New York, New Haven & Hartford R.R.

In 1936, following a brief period with the Chicago, Burlington & Quincy Ry. on flood reconstruction work, Mr. Perlman went to the Denver & Rio Grande Ry. as engineer maintenance-of-way. In this position he completely revolutionized the railroad's maintenance operations, mechanizing many manual operations and substituting tractor-mounted equipment for operations done formerly with rail-mounted equipment.

During this time Mr. Perlman also inaugurated an extensive program of research into the engineering problems of the D&RG.

Mr. Perlman was named chief engineer of the D&RG in 1941 and in 1942 was made general manager. He was advanced to executive vice-president in 1952.

Army engineer retirements to show large increase

The last six months of 1954 will witness the retirement of 30 colonels and two brigadier generals from the regular officer roster of the Corps of Engineers. According to the Officer Personnel Act of 1947, officers with 30 years' service who have served five years in the grade of permanent colonel are required to retire.

In the first half of this year only three senior officer retirements occurred under the mandatory rules—Col. Leland H. Hewitt, and Brigadier Generals Don G. Shingler and Robert G. Lovett. The names and addresses of those on the list for last half retirement are as follows:

July 31
- Col. Donald C. Hill, East Ocean Division, Richmond, Va.
- Col. Reginald L. Dean, Headquarters V Corps
- Col. Merrow E. Sorley, The Engineer Center, Fort Belvoir, Va.
- Col. Fremont S. Tandy, District Engineer, Walla Walla, Wash.
- Brig. Gen. Paschal N. Strong, Division Engineer, Ohio River Division, Cincinnati, Ohio
- Col. Emil J. Peterson, 6th Armored Division, Fort Leonard Wood, Mo.
- Col. Leonard L. Bingham, MAAG Formosa

Aug. 31
- Col. George J. Reinhardt, The Engineer School, Fort Belvoir, Va.
- Col. Chester A. Rowland, Southwestern Division, Dallas, Tex.

Sept. 30
- Col. Herbert R. Tumin, Southwestern Division, Dallas, Tex.
- Col. Elmer E. Barnes, Industrial College of the Armed Forces, Ft. L. J. McNair, Washington, D. C.
- Col. Noel S. Bishop, Jr., Hq. U. S. Army Forces, Far East
- Col. Donald S. Burns, Hq. Joint Construction Agency, Paris, France
- Col. Howard V. Canan, Office, Chief of Engineers, Washington, D. C.
- Col. Edward H. Coe, The Engineer Center, Fort Belvoir, Va.
- Col. John O. Colonna, 2d Engineer Amphibious Support Brigade
- Col. David M. Dunne, Hq III Corps, Fort MacArthur, Calif.
- Col. Chester K. Harding, Communications Zone, Europe
- Col. Lloyd E. Mielenz, Communications Zone, Europe
- Col. Hubert S. Miller, Office, Chief of Engineers, Washington, D. C.
- Col. Anderson T. W. Moore, Office, Chief of Engineers, Washington, D. C.
- Col. Louis J. Rumaggi, Office, Chief Army Field Forces, Fort Monroe, Va.
- Col. Girard B. Troland, North Atlantic Division, New York, N. Y.
- Col. Heath Twichell, Hq Southwestern Command (Far East)
- Col. McDonald D. Weinert, Engineer, Fourth Army, Fort Sam Houston, Tex.
- Col. Leverett G. Yoder, American Battle Monuments Commission, Paris, France
- Col. Kingsley S. Anderson, The Engineer Center, Fort Belvoir, Va.
- Col. Philip R. Garges, District Engineer Buffalo District, Buffalo, N. Y.
- Col. Wallace H. Hastings, Hq Allied Forces Southern Europe
- Col. Howard Ker, Hq. Eighth Army
- Brig. Gen. Herbert D. Vogel, Division Engineer, Southwestern Division, Dallas, Tex.

Dec. 31
- Col. John G. Ladd, Hq United States Army Forces, Far East

When ground water infiltration is a problem...

Always specify vitrified CLAY PIPE

MURRAY CITY, UTAH, adds another 22,975 ft. of Vitrified Clay Pipe to its sewerage system to serve a new housing area. Because of the high water table in some sections of the project, the trench bottom had to be boxed in and pumped dry while the pipe was laid three sections at a time. Officials directing various phases of the project include City Engineer D. H. Wood, Assistant City Engineer John N. Neff, Installation Foreman John Carolo, and Pipe Foreman Ken Farrell. General Contractor is The Statewide Plumbing and Heating Co.

Wherever the water table is high, sanitary engineers experienced in handling infiltration problems choose Vitrified Clay Pipe. The wide selection of factory-made joints or in-the-trench jointing techniques permit the kind of installation that suits each project . . . each trenching problem . . . each locale.

And once in the ground, Vitrified Clay Pipe is *down to stay.* It is confidently guaranteed for 50 years.

Officials at Murray City specified Clay Pipe even before they submitted the bond issue to the voters — smart planning that assures the community of trouble-free service long after the bonds mature. For sewers that *must* be permanent, always specify, buy, and install Vitrified Clay Pipe. There's no safe substitute for the *one* pipe that never wears out.

Vitrified CLAY PIPE

NATIONAL CLAY PIPE MANUFACTURERS, INC.
1520 18th St. N.W., Washington 6, D. C.

206 Connally Bldg., Atlanta 3, Ga.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio

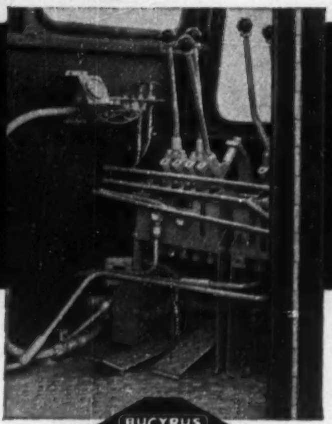
C-454-2

BUCYRUS-ERIE presents

NEW UP-RATED SELF-POWERED

HYDROCRANE

with selector valve



BUCYRUS ERIE
HYDROCRANE

Now Bucyrus-Erie offers a new, more powerful all-hydraulic crane-excavator — the self-powered H-3 Hydrocrane. Taking its power from its own 4-cylinder industrial engine instead of from the truck engine, the new self-powered Hydrocrane provides the following big advantages:

1. **Increased horsepower** through eliminating restrictive influence of side-mounted truck power take-off.
2. **Selector valve operation.** Power concentration selector unit permits channeling hydraulic fluid from all three pumps to one valve bank — increases line speeds up to 50%.
3. **Convenient operation.** Selector valve is foot operated — provides metered control of higher speeds—operator need not let go of hoist and swing levers to operate selector valve. Controls for power plant conveniently grouped at operator's station.
4. **Reduced crane maintenance** from simpler more direct power application. High pressure hoses through center pin leading from pumps to valve bank eliminated. Fewer belts, shafts, and hoses.
5. **Improved efficiency.** Improved oil filtering with less restriction. Better cold weather performance.
6. **Improved truck engine life.** Economy results from fewer truck repair bills. Generator for independent power plant re-charges motor truck battery. Overall fuel consumption is less.

1H54

These are just a few of the advantages of the new self-powered Hydrocrane — and self-power is just one of the big features that is making the Hydrocrane foremost in 1954. See your distributor for complete details.

Bucyrus-Erie Company
South Milwaukee
Wisconsin, U.S.A.

Miscellaneous notes . . .

- **A Geological Survey map** has been prepared to show the configuration and altitude of the water table in most of Nebraska. (Nebraska is the first state to be covered almost entirely by such a map.) Data—indicating the direction of ground water movement in different areas as well as ground water divides between the streams—should be of special help to local, state and federal authorities in planning for the full development of Nebraska water resources. Copies of the map may be obtained for the cost of preparation from the Geological Survey, 508 Rudge-Guenzel Bldg., Lincoln, Neb.

- **A small ultra-violet unit** that will disinfect several hundred gallons of water per day yet require a minimum of labor and maintenance has been developed by the Texas Engineering Experiment Station. Results of the station's experiments with its latest surface water treatment method as well as directions for constructing the unit will be published as Bulletin No. 134—"Disinfection of Small Surface Water Supplies with Ultra-violet Light". Studies revealed that an ultraviolet lamp housed in a 2-in. (or smaller) pipe of sufficient length to give about a one minute exposure provides adequate disinfection for filtered water. The design recommended to the rural public for use with the slow sand filter developed in earlier experiments is aimed at assuring maximum safety. Its 1½-in. housing pipe and 30-in. lamp is said to provide good penetration and lengthy exposure.

Reports and pamphlets

EFFECT OF FLY ASH IN CONCRETE—Publication No. 48, National Ready Mixed Concrete Association, 1325 E Street N.W., Washington 4, D. C. $0.75.

TESTS OF CONCRETE TRUCK MIXERS—Publication No. 50, National Ready Mixed Concrete Association, 1325 E Street, N.W., Washington 4, D. C. $0.75.

FERROUS METALS—Part 1: 1953 Supplement to Book of ASTM Standards. American Society For Testing Materials, 1916 Race St., Philadelphia 3, Pa. $3.50 ($2.75 to members)

OXIDATION PONDS: RADIOACTIVITY UPTAKE AND ALGAE CONCENTRATION—Technical Report No. 1, Sanitary Engineering Laboratories, The University of Texas, Austin, Texas.

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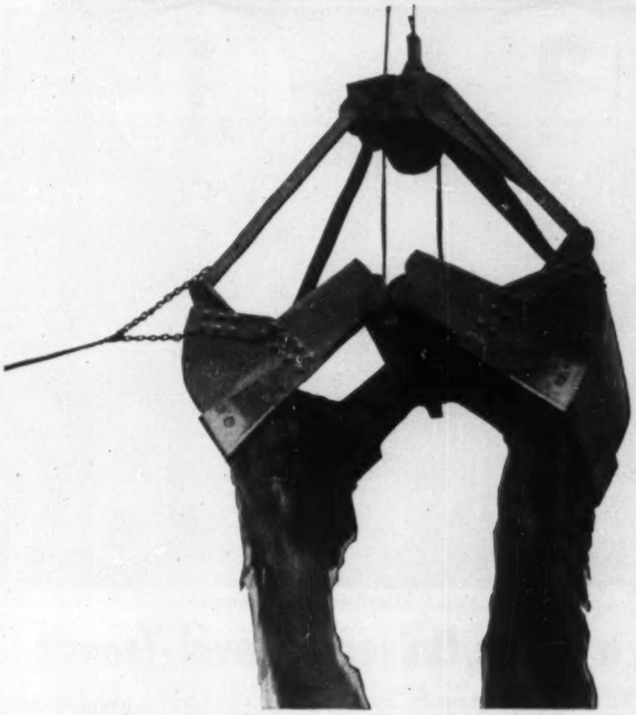

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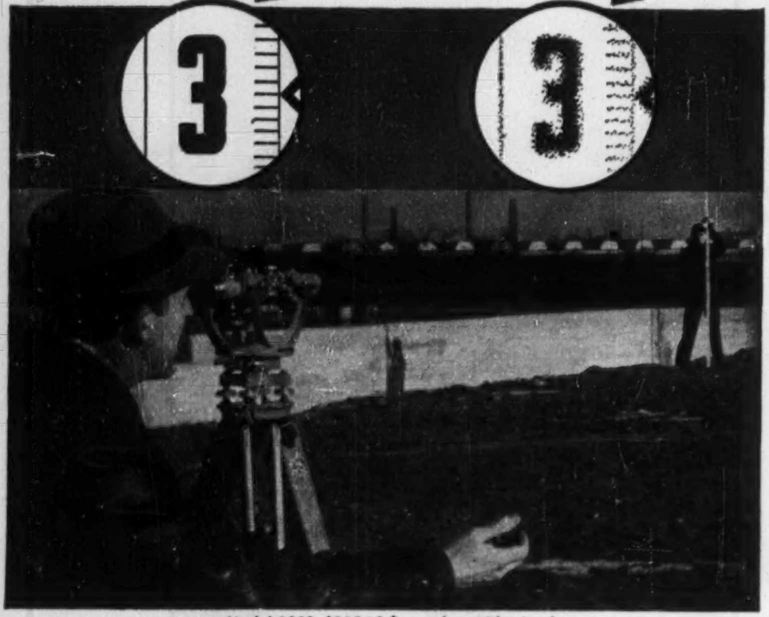

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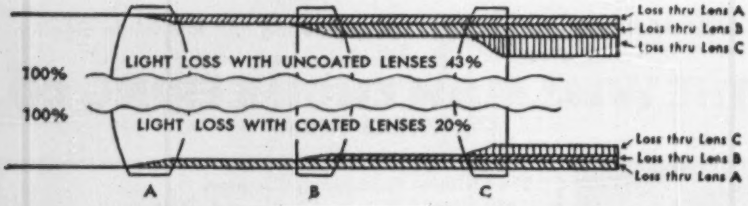
COMPARISON OF LIGHT PASSAGE



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OBITUARIES

Theron A. Hartung, 62, a veteran of the Navy Civil Engineering Corps died at St. Albans, N. Y., June 11. From 1948 until his retirement a year ago Captain Hartung was the 3rd Naval District C.E. Corps officer and he was also public works officer for the district, comprising New York, New Jersey and Connecticut. At the outbreak of World War II he was assistant public works officer at Pearl Harbor. In 1942-43 he was in charge of air base construction in the Pacific. He was a C.E. graduate of the University of Michigan.

Gilbert A. Bell Sr., 66, a civil engineer in the Washington, D. C., area for almost 30 years, died June 7. He was a graduate of Carnegie Institute of Technology.

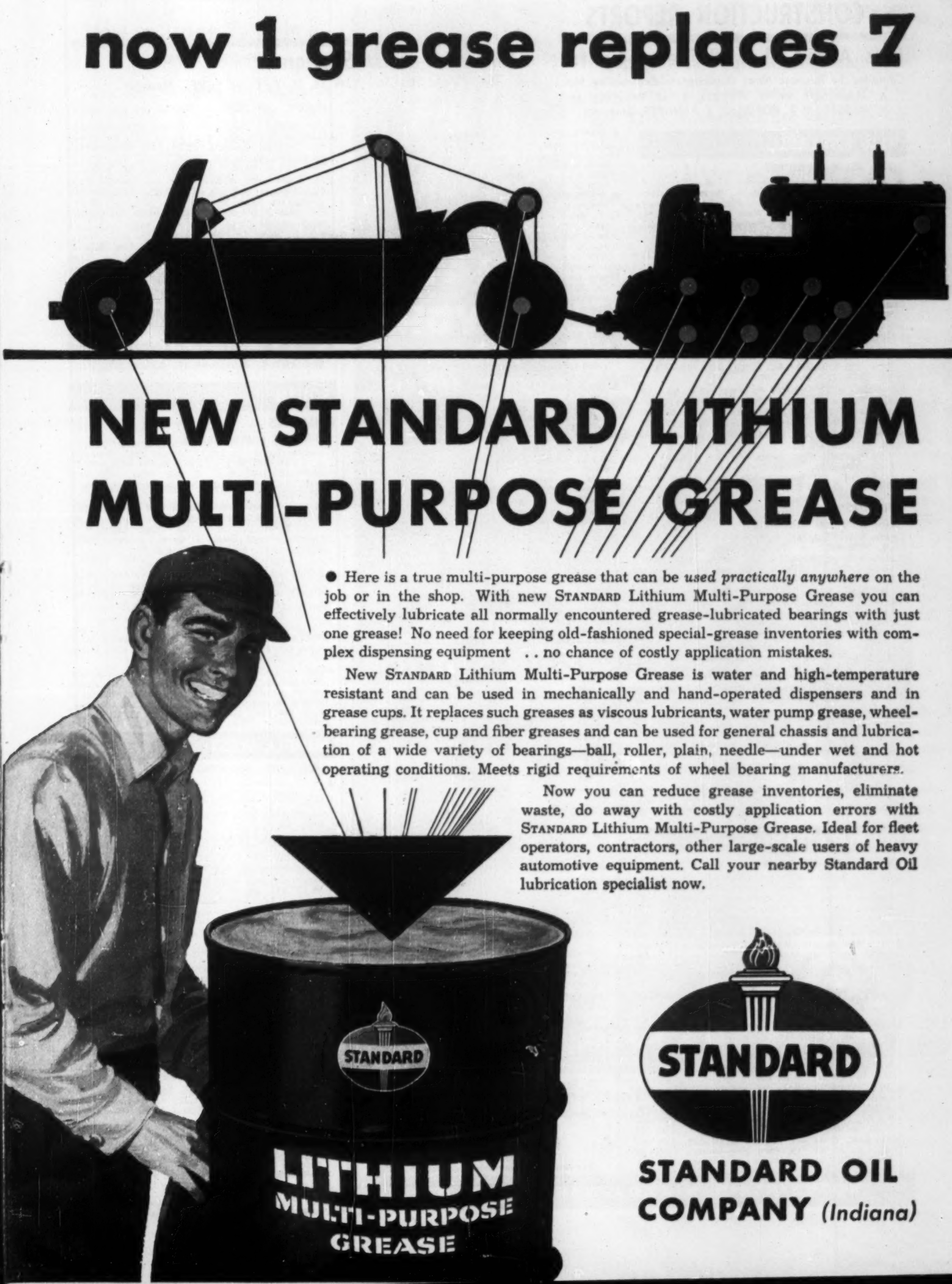
Charles L. Wartelle, 69, city engineer at Seattle, Wash., for 10 years until 1947, died June 1 at Camano Island. Graduated in civil engineering from Louisiana State University, he served as a first lieutenant in the Corps of Engineers in World War I. He had been with the Seattle engineering department since 1907 before being named its head in 1938.

Arthur H. Bunte, 53, director of testing laboratories for the Colorado State Highway Department, died June 4. He worked 15 years in the Denver city engineer's office before transferring in 1937 to the highway department. He was a graduate of Colorado School of Mines.

Arthur W. Sargent, 81, civil engineer and a principal designer of the government locks for the Corps of Engineers at Seattle, died June 2 at Stanwood, Wash. After designing and supervising construction of the locks, he was resident engineer in charge of the project for more than 30 years.

Paul C. Whitney, 71, a hydrographic and geodetic engineer of the Coast and Geodetic Survey before he retired in 1946, died in Leonard, N. D., June 9. Captain Whitney had been with the Survey for 44 years, retiring as supervisor of the Southeastern district at Norfolk, Va. He had directed surveys of the coasts of Alaska and the Philippines, and along the Atlantic and Pacific coasts of the United States.

Carroll Robb, 58, chief of the management branch of the Washington, D. C., district office of the Army Engineers, died in Washington June 11.



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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M E SCIORRA, F S. DEMBEK, Reports.
J. H. WEBBER, M R. ROESSLER, E R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—BUILDINGS

▲ **Conn., Hartford**—LIBRARY—BA 7/15—City, C. F. Sharpe, city mgr., 550 Main St., Hartford, 3 story, bsmnt., brick, marble steel U-shaped public library, 2 story childrens wing, Main and Sheldon Sts., $2,700,000. Schutz & Goodwin, 12 Haynes St., Hartford, archts. CD 1/14/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MAINE**—Maine Turnpike Auth., 17 Bishop St., Portland,

Consolidated Constr. Co., Draper Ave., North Attleboro, Mass. LB, **$780,757.** Alt. B;

Savin Constr. Corp., 10 Village St., East Hartford, Conn. LB, **$797,326.** Alt. A; est. $700,000. Contr. 214 8 bridges, New Gloucester and Auburn;

Theodore Loranger Sons, 404 Nash Rd., New Bedford, Mass. LB, **$501,032.** Alt. A, LB, $473,785. Alt. B. est. $500,000. Contr. 215.

Hector J. Cyr Co., Oakland Rd., Waterville, Me. LB, **$119,994.** Alt. A. LB, **$115,893.** Alt B. est. $120,000. Contr. 215A. 9 bridges, Webster and Litchfield. Bids June 11. CD 5/24.

† **F. D. Rich Co., Inc.**, 322 Main St., Stamford, Conn. LB, **$918,546.** est. $1,000,000-$2,000,000. air force reserve training center facilities, Hanscom Air Force Base, Eng. 19-016-54-106, BEDFORD, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids June 11. CD 5/25.

BUILDINGS

LOW BIDS AND CONTRACTS

Stewart & Williams, Inc., 108 Arsenal St., Augusta, Me. LB, **$756,000.** est. $900,000. GERIATRIC BLDG., State Hospital, AUGUSTA, ME. State, Dpt. Institutional Service, State House, Augusta, Me. Bids June 9. CD 5/25.

▲ **M. Spinelli & Sons, Inc.**, 25 Moulton St., Cambridge, Mass. LB, **$1,847,000.** est. $2,000,000. 156 HOUSING units, Gorham St., Proj. 1-3, LOWELL, MASS. Lowell Housing Auth., 18 Market St., Lowell, Mass. Bids June 11. CD 5/25.

▲† **Gilbane Building Co.**, 90 Calverly St., Providence, R. I. LB **$1,509,955.** est. $2,240,000. TRANSIT SHED, WAREHOUSE, Naval Supply Depot, NOY 79817. Spec. 38329. NEWPORT, R. I. First Naval Dist., 495 Summer St., Boston, Mass. Cull & Robinson, 385 Benefit St., Providence, R. I., archts. Bids June 8. CD 4/28.

▲ **Newington Heights, Inc.**, c/o Jack Cooper, Pres., West Hill Park, Newington, Conn., Owner Builds, **$1,500,000**, 100 RESIDENCES, Section 5, West Hill Park, NEWINGTON, CONN.

▲ **Rust Engineering Co.**, 575 6 Ave., Pittsburgh, Pa. CA, Est. **$1,000,000.** PLANT EXPANSION, WINDSOR LOCKS, CONN. C. H. Dexter & Sons, Inc., David L. Coffin, vice pres., Canal Bank, Windsor Locks, Conn.

MIDDLE ATLANTIC

BIDS ASKED—BUILDINGS

▲ **N. Y., Buffalo**—PARKING GARAGES—BA 6/25—City, City Hall, Parking Garage No. 1, $450,000; Parking Garage No. 2, $900,000. both rein.-con. constr. Plans deposit $25 each. James, Meadows & Howard, 250 Delaware Ave., archts.

SOON LETS CONTRACT—BUILDINGS

▲ **Pa., Williamsport**—WAREHOUSE—Sylvania Electric Products Co., 460 Market St., warehouse and power plant. $1,500,000. Paul Van Wert, c/o owner, engr.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Ranes Constr. Co.**, 151 Montague St., Brooklyn 2, N. Y. CA, **$1,269,910**, Hangar No. 11, New York International Airport, incl. paving, utilities. Constr. NYA-363-002, IDLEWILD, N. Y. The Port of New York Auth., 111 8th Ave., New York 11, N. Y. Bids Apr. 30. CD 5/4, under LB.

▲ **PENNSYLVANIA**—State Hy. and Bridge Auth., 506 North Office Bldg., Harrisburg,

J. Robert Bazley, Inc., Pottsville, Pa., LB **$2,053,808**, 4.8 mi. sect. U. S. Hy. 122 between Shoemakersville Berks Co. and Port Clinton, Schuylkill Co.;

Hempt Bros., Camp Hill, Pa., LB **$2,087,326**, 3.39 mi. sect. U. S. Hy. 15, from Eichelberger's Curve in Camp Hill to Gettysburg Interchange on the Pennsylvania Turnpike, Cumberland Co. Bids June 11. CD 5/25.

▲ **MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore,

Robt. T. Main, Box 1, Salem, Va. CA **$1,527,208.** combined bid with alternates, North-South Rte. 4.74 mi. and 4.62 mi., Contr. K-188-5-220, K-188-6-220, Kent Co. CD 6/1 under LB.

▲ **MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore,

F. P. Asher Jr. & Sons, Inc., 2715 West Ext., Annapolis, Md. LB **$2,101,353.** grading, drainage, surf. 14.74 mi. National North South Route, Contrs. Q 168-36-220, Q 168-33-220 and Q 168-37-220, Queen Anne Counties. Bids June 1. CD 5/19.

DELAWARE—State Hy. Dpt., Dover,

Empire Constr. Co., 31 S. Calvert St., Baltimore, Md. CA, **$633,540.** underpass at the Pennsylvania R. R. in connection with the Walnut Street Crossing, New Castle Co. CD 3/23/53.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Fred C. Trump**, 89-31, 161 St., Jamacia, N. Y. Owner Builds. **$8,100,000.** three 6-story APARTMENTS for 1,080 families, 33 Ave. from 90 to 93 Sts., CORONA, N. Y. CD 3/18.

▲ **Stock Constr. & Co.**, 3842 Grand Central Terminal, New York 17, N. Y., CA **$7,712,000**, Items 1 through 14, base bid for animal disease LABORATORY, Plum Island, Serial No. ENG-30-075-54-99. FORT TERRY, N. Y. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids May 20. CD 5/25, under LB.

▲ **Cauldwell-Wingate Co.**, 101 Park Ave., New York 17, N. Y., CA **$7,000,000.** Contr. 2, superstructure for Albert Einstein COLLEGE OF MEDICINE and foundations for auditorium, library and powerhohuse at Yeshiva University, NEW YORK, N. Y. Yeshiva University, 270 Park Ave., New York 17, N. Y. CD 4/13.

▲ **Stanton E. Lipschutz**, S. John Russell Circle, Elkins Park, Pa. Separate Contracts. **$1,000,000.** RESIDENTIAL development, Butler Park, AMBLER, PA.

Fred Lundgren, R.D. 5, Kittanning, Pa., CA **$931,998**, 2-story U-shaped, brick, block, 102x122 and 118x152 ft. HIGH SCHOOL, KITTANNING, PA. Kittanning Area Joint Schools, Kittanning, Pa. CD 4/30, under LB.

C. Raymond Lukens, North Wales, Pa., CA Approx. **$800,000.** HOSPITAL addns., alterations, LANSDALE, PA. North Penn Hospital, 642 N. Broad St., Lansdale, Pa. Bids Apr. 15. CD 4/5.

▲ **Mohican Realty Co.**, 832 DeKalb St., Norristown, Pa., Separate Contracts. **$1,190,000.** RESIDENTIAL development, Sandy Hill, NORRISTOWN, PA. John V. Holy, 824 W. Marshall St., Norristown, Pa., archt.

▲ **A. Moore Lifter**, 1708 Melrose Ave., Melrose Park, Pa., Separate Contracts. **$2,000,000.** RESIDENTIAL development, Upper Moreland Twp., WILLOW GROVE, PA. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archt.

▲† **J. D. Hedin Co.**, 2900 Newton St. N.E., Wash., D. C. LB **$4,662,000.** LABORATORY bldg. M-V 2, 3, 4 and 5, CAMP DETRICK, MD. U. S. Eng., First and Douglas Sts. N.W., Wash., D. C. Bids June 10. CD 6/2.

▲ **Kirby & McGuire**, 2518 Greenmount Ave., Baltimore, Md. CA **$1,942,928.** Patapsco Neck High SCHOOL lodge Farm and North Point Rd., Middle River, TOWSON, MD. Baltimore Co., Bd. Educ. Aigburth Rd., Towson, Md. CD 6/1, under LB.

▲ **Gordy & Son**, DuPont Hy., Wilmongton Manor, New Castle, Del. Separate Contracts. Est. **$2,250,000.** RESIDENTIAL DEVELOPMENT, DOVER, DEL.

SOUTH

BUILDINGS

LOW BIDS AND CONTRACTS

† **Kaminer Constr. Co. Inc.**, P. O. Box 2055, Greenville, S. C., LB **$733,895.** POWER PLANT addn., MCAS, CAMP LEJEUNE, N C. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids June 7. CD 5/21

King-Hunter, Inc., Greensboro, N. C., LB **$471,037**, White Rock SCHOOL, WINSTON-SALEM, N. C. Bd. Educ., Forsyth Co., Court House, Winston-Salem, N. C. Lashmit, James, Brown & Pollock, Reynolds Bldg., Winston-Salem, N. C., archts. Bids May 27.

Floyd S. Burge Constr. Co., 406 Dean St., Winston-Salem, N. C., LB **$88,362.** PLANT, WINSTON-SALEM, N. C. American Bakeries Co., 10 Pryor St. S. W., Atlanta, Ga. Stevens & Wilkinson, 157 Luckie St., N. W., Atlanta, Ga., archts. Bids June 1.

▲ **L. W. Eaton Co., Inc.**, Box 387, Baton Rouge, La. CA **$3,000,000.** SHOPPING CENTER north part BATON ROUGE, LA. Harold S. Carlton and Robt. C. Kemp, c/o Manson & Thompson, archts., 8200 Florida Ave., Baton Rouge, La. Awarded June 4.

† **Shaw & Estes**, 1407 S. Akard St., Dallas, Tex., CA, **$681,030**, 6 storage sheds and facilities for storing various propellants used in testing guided missiles at Restone Arsenal, HUNTSVILLE, ALA. U. S. Eng., P. O. Box 1169, Mobile, 7, Ala. CD 11/30/51.

MIDDLE WEST

BIDS ASKED—BUILDINGS

▲ **Wis., Wisconsin Rapids**—COURTHOUSE, etc.—BA 8/5—Wood Co., Wisconsin Rapids, 3 story T-shaped, 246x270 ft., Courthouse and jail $1,250,000. Plans deposit $50. Donn Hougen, Wisconsin Rapids, Wis., archt. CD 3/16.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,

McDowell Co. Inc., 3203 W. 71 St., Cleveland, O., CA **$5,133,333.** est. $5,520,500, Part 3 of Toledo Expressway Sys. incl. superstructure, portions of the bascule piers, and appurtenant work of the Maumee River Bridge, Br. No. LU-120-35. 0.505 mi. S. R. 120, Sect. 3.46, Lucas Co. Bids May 25. CD 6/3 under LB.

James Burton Co., 308 W. Washington St., Chicago 6, Ill., CA, **$769,761.** 2 underground structures, shed, generator bldg., water supply, Cook Co.; Serial No. ENG 11-032-54-44, ILLINOIS U. S. Eng., 475 Merchandise Mart, Chicago, 54, Ill. Bids May 25, awarded June 3. CD 6/3, under LB.

▲ **WISCONSIN**—State Hy. Comn., State Office Bldg., Madison,

Bushman Constr. Co., 4635 Wyandotte St., Kansas City, 12, Mo., CA, **$1,412,310**, 11.033 mi. Option "B", Contract 1, Projs. T 017-2 (10), F 017-2 (11) and U 4201 (4), Columbia and Dodge Counties;

Braun Constr. Co. and Charles E. Runions, R 2, Fond du Lac, Wis., CA **$249,269**, 1.012 mi. Contract 1, Proj. U 4701 (3), Fond du Lac Co. Bids June 8. CD 6/14, under LB.

▲† **Charles Harris Co.**, 474 University Ave., St. Paul 4, Minn., CA, **$1,935,666**, exterior facilities incl. roads, railroads, process piping and utilities, Badger Ordnance Works, Serial No. ENG-47-013-54-19, BARABOO, WIS. U. S. Eng., 428 Federal Bldg., Milwaukee, Wis. Bids June 3. CD 6/9, under LB.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a suuplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

(Advertisement)

How to Judge Value in a Shovel-Crane

You can't compare the quality of two pieces of equipment by simply comparing their so-called "features." For instance, one shovel-crane manufacturer may "sell" the idea that he has a 25 ft. hoe boom as compared with a competitor's 23 ft. boom, leaving the inference that it would dig deeper. Actually, the stick used with the 23 ft. boom might be longer than the one on the 25 ft. boom and, therefore, would dig as deep or deeper. One manufacturer might "feature" anti-friction bearings as proof that his machine excelled while actually the high speeds at which he runs his shafts might mean that he couldn't use anything else.

Sometimes highly touted "features" are ballyhoo to cover up inherent weaknesses elsewhere. After all, being *different* isn't necessarily *better.*

Design features cannot just be imposed on a machine — they must be *integrated* into *all* parts and functions. Design features as such are not what users really buy. They buy only what the features will *do* for them in the way of low end cost, ease of use and, primarily, the profits they will produce.

Instead of features, we at Thew believe in what we call "Balanced Quality." We don't claim to "out-feature" every one else; to be faster, more powerful, to have more of "everything." But we do offer "Balanced Quality" in which all the components, and functions, are quality-engineered into a completely integrated unit.

In many respects, we do better than others . . . in others, we come close to the top. But all-in-all, the combination results in a machine in which *quality* has been distributed evenly *throughout* the machine rather than concentrated in a few sales features. A machine in which *power* has been "*balanced*" properly between all operations, in which the *speeds* of various functions have been *balanced* for integrated, synchronized operations, in which the *controls* have been *balanced* to produce quick starts and rapid acceleration, in which the *weight* of the machine has been *balanced* for maximum stability.

Any one of these results in itself, or the design by which it is achieved, may not be sensational but, added all together, they will do that one thing we believe you really want more than anything else — and that is: *put more dirt in the wagons, faster, at lower cost — and to do it longer!*

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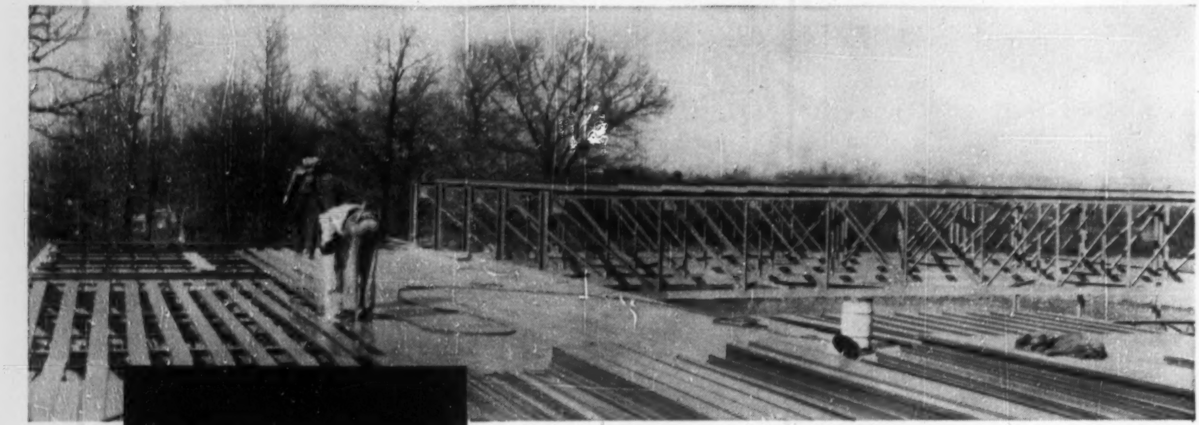

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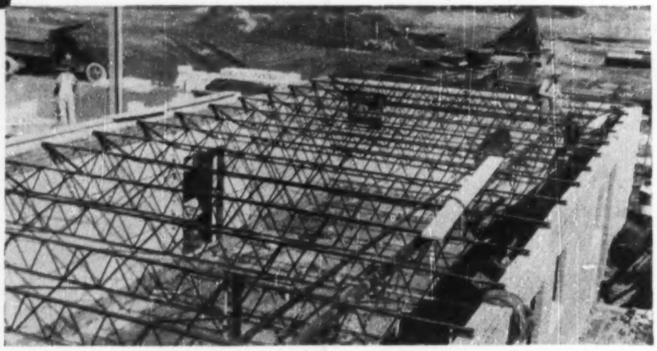

Chaney High School, Youngstown, Ohio.
Scheible and Shaffer, architects.
Charles Shutrump and Sons Co., contractors.

Other Truscon products in this new school include Clerespan® joists; commercial projected, architectural projected, and intermediate combination steel windows; screens; series 31 industrial doors and frames; Ribplex® metal lath; lath clips; welded wire fabric and reinforcing bars.

This Truscon "package" provides a roof construction that is light in weight, fire-resistant, long-lasting, and economical. It is quickly erected and can be insulated to any required degree.

Truscon "O-T" Steel Joists for floor and roof supports are light, strong, and fire-resistant. Being light in weight, they lessen the time and labor required for erection, save material in supporting framework and foundations.

The Ferrobord Steeldeck can be clipped or welded directly to the joists and comes in lengths that span three or more purlins. It is easy to handle, easy to place. It roofs large areas quickly . . . flat, pitched, or curved. Erection is done from above. No scaffolding needed. Exclusive design allows for full-length interlocking and greater strength.

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A NAME YOU CAN BUILD ON

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Charles Bernstein**, 12600 Shaker Blvd., Cleveland 20, O. Owner Builds. **$2,000,000.** two 8-story masonry APARTENTS, 130 suites, with garages and bsmnt. CLEVELAND, O. Joseph L. Weinberg, Citizens Bldg., Cleveland 14, O., archt.

▲ **E. Elford & Son, Inc.**, 555 S. Front St., Columbus, O. CA. Approx. **$1,000,000.** 3-story brick bldg. to house 80 Sisters of Charity, NURSING and HOSPITAL FACILITIES, chapel, refectory, offices, kitchen, etc. COLUMBUS, O. St. Mary of the Springs, N. Nelson and Johnstown Rds., Columbus, O. Louis F. Karlsberger, 630 E. Broad St., Columbus, O., archt.

Fred Berglund & Son, 8410 S. South Chicago Ave., Chicago, Ill., CA, **$994,920**, X-Ray CLINIC at County Hospital, Harrison and Wood Sts., CHICAGO, ILL. Cook Co., County Bldg., Chicago, Ill. CD 9/28/53.

▲ **Cicero Land Co.**, c/o A. J. Del Bianco, archt., 5501 Irving Park Rd., Chicago, Ill., Own Forces, **$3,000,000**, 200 HOMES near Kenton and 79 Sts., CHICAGO, ILL.

▲ **American Building Corp.**, 13750 Vassar Dr., Detroit 35, Mich. Owner Builds. est. **$1,200,000.** 100 brick ranch HOMES Haggerty and Ten Mile Rd., FARMINGTON, MICH.

▲ **Julius Schwartz & Assoc.**, 1964 National Bank Bldg., Detroit, Mich. Owner Builds, est. **$6,000,000.** 500 HOMES Annapolis Park subdivision Middlebelt Rd. between Michigan Ave. and Willow Run Expressway, NANKIN, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Colo., Colorado Springs**—BA 7/12—City, City Hall, Montgomery Dam, $3,000,000, Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs. CD 3/16.

BIDS ASKED—BUILDINGS

▲ **Tex., Abilene**—OFFICE, GARAGE—BA 7/7—Citizens National Bank, N. 1st and Pine Sts., 8 story office and 2-story parking garage (one bldg.) total 173,000 sq. ft., masonry constr. $2,140,000. Plans deposit $20. George L. Dahl, 2101 N. St. Paul St., Dallas, and F. C. Olds, Compton Bldg., engrs.-archts.. CD 7/30/53 and 5/19/54, respectively.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEBRASKA**—State Dpt. Roads and Irrigation, Lincoln,

Grosshans & Peterson, Inc., Marysville, Kan. and **Parks Constr. Co.**, 719 S. 9 St., Omaha, Neb., LB **$1,381,000**, pavement, culverts, roadside imprvt., overpass, traffic control signal on east sect. of Northwest Radial Hy. City of Omaha, FA-U-112 (7), Douglas Co. Bids June 10. CD 6/2.

Metropolitan Paving Co., 300 S. Indiana St., Oklahoma City, Okla., CA **$417,945.** est. $432,431, widen and pave W. 10 St. from Pennsylvania to Tulsa Sts., OKLAHOMA CITY, OKLA. City, City Hall, Oklahoma City, Okla. W. W. Baker, city engr. Bids May 6, awarded June 8. CD 3/26.

Robert E. McKee, General Contractor, Inc., P. O. Box 562, El. Paso, Tex., LB, **$798,161.** secondary sewer treatment plant and related facilities, EL PASO, TEX. City, c/o P. Service Bd., 419 N. Stanton St., El Paso, Tex. Bids June 8.

BUILDINGS

LOW BIDS AND CONTRACTS

Baldwin Co., Wallace Bldg., Little Rock, Ark., LB, **$626,247**, general contract;

Turner-McCoy Mechanical Contractors, 506 Locust St., North Little Rock, Ark., LB, **$324,010**, mechanical work; for 3 story, 125-bed HOSPITAL ADDN., LITTLE ROCK, ARK. Arkansas Baptist Hospital, 1700 W. 13 St., Little Rock, Ark. Bids June 11. CD 6/2.

Gilmore Constr. Co., 1207 N. 11 St., Omaha, Neb., CA **$540,434.** general constr.; LIBRARY at University of Omaha, OMAHA, NEB. City, Omaha, Neb., Bids May 28. CD 6/2, under LB.

▲ **Claude Mathis**, P.O. Box 1727, Amarillo, Tex., LB, **$1,162,884.** est. $300,000. Senior HIGH SCHOOL. masonry constr., which is part of high school plant to be built on northside in five units, AMARILLO, TEX. Amarillo Independent School Dist., Amarillo, Tex. Bids June 8. CD 5/12.

▲ **Jansen Constr. Co.**, Box 6952, Dallas, Tex., CA, **$1,168,323.** est. $2,500,000. 5-story bsmnt. 155 x 200 ft. limestone, granite, marble, structural steel, etc. CITY HALL, to include fdn. for future 5 addnl. stories.. DALLAS, TEX. City, City Hall, Dallas, Tex. Bids May 31. CD 6/9, under LB.

▲ **R. T. Collins**, 2429 Oaklane St., Tyler, Tex., CA, **$1,250,000.** SHOPPING CENTER, six 1-story and one 2-story for total seven brick, hollow tile type bldgs., approx. 142,000 sq. ft. VICTORIA, TEX. Victoria Development Co. A. B. J. Hammett, 509 Victoria National Bank Bldg., Victoria, Tex. and Max Kirkpatrick, Peoples National Bank Bldg., Tyler, Tex Melvin J. Cates, Box 241, Tyler, Tex., archt., Lockwood & Andrews, 103 Liberty St., Victoria, Tex. engrs. CD 4/27, under LB.

▲ **Par-Mac Constr. Co.**, Pecos, Tex., CA **$349,195**, 36 frame DWELLINGS, concrete slab fdn.; CA **$343,185**, 32 frame dwellings, concrete slab fdn.; CA **$327,000**, 26 brick veneer dwellings, concrete slab fdn. Grand total $1,019,380. PECOS, TEX. Western Abstract Co., Pecos, Tex. CD 6/3.

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Riedesel-Lowe Constr. Co., Box 914, Cheyenne, Wyo. CA **$922,543**. est. $1,000,000. 4 story bsmnt., brick HOSPITAL, CASPER, WYO. Natrona Co., Hospital Assoc., Casper, Wyo. CD 6/8, under LB.

Spiegelberg Lumber & Bldg. Co., 259 W. Fremont St., Laramie, Wyo. CA **$436,500**. est. $500,000. 3 story, bsmnt., 52x190 ft., steel GEOLOGY, LARAMIE, WYO. University of Wyoming, Campus, Laramie, Wyo. Bids June 2, awarded June 7. CD 5/4.

† **Farnsworth & Chambers Co., Inc.**, Box 74, Houston, Tex., LB, **$606,461**. est. $360,000. addnl. facilities, TA 33, Proj. "F", 50x150 ft. LABORATORY, 2 earth covered structures, 21x90 ft. reinforced bldg., four guard stations, 2 mi. bit. surfaced roads, Inv. No. 291-54-11. TA-33, LOS ALAMOS, N. M. U. S. Atomic Energy Comn., Los Alamos Field Office, Los Alamos, N. M. Max Flatow, 1840 Lomas Blvd., N. E., Albuquerque, N. M., archt. Bids June 1.

FAR WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Utah Constr. Co.**, Box 1590, Salt Lake City, Utah, LB **$2,423,004**, est. $3,603,210, furnishing labor and materials for Wanship Dam, Weber Basin Proj. near Wanship. Spec. 4170. UTAH. Bureau Reclamation, Dpt. Interior, Ogden, Utah. Bids June 10. CD 6/14, under LB.

▲† **Montgomery Macri Co. & Western Line Constr. Co.**, Builders Exchange Bld., Portland, Ore., CA, **$1,788,727** Schedules 2 and 3, Chief Joseph-Snohomish, 345-kv line, 65.6 miles; Chelan , King and Snohomish Counties, Inv. 7345, WASHINGTON. Bonneville Power Admin., 872 N.E. Oregon St., Portland, Ore. Bids May 17, awarded June 10. CD 6/3.

▲† **Cherf Brothers Inc. and Sandkay Con.**, Ephrata, Wash. CA **$1,676,547**. earthwork, pipe lines, structures incl. 1.13 pumping plants, Schedule I, Columbia Basin Proj., Spec. DC 4151, WASHINGTON. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids May 20, awarded June 4. CD 5/27, under LB.

The Austin Co., 777 E. Washington Blvd., Los Angeles, Calif., CA **$538,420**, design and construct, 41,040 sq. ft., TELEVISION STUDIO, BURBANK, CALIF. National Broadcasting Co., 3200 W. Olive St., Burbank, Calif. CD 1/29/52.

† **Edward R. Siple**, 2545 San Fernando Rd., Los Angeles, Calif., LB, **$322,978**, armament and electronics shop, ENG 04-353-54-87, MARCH AIR FORCE BASE, CALIF. U. S. Eng., 751 Figuerao St., Los Angeles, Calif. Bids June 10. CD 5/17.

† **Matich Brothers**, Box 390, Colton, Calif., CA, **$275,247** runway widening and airfield lighting, Norton Air Force Base, ENG 04-353-54-95, SAN BERNARDINO, CALIF. U. S. Eng., 751 Figueroa St., Los Angeles, Calif. Bids June 10, awarded June 10. CD 5/26.

Charles T. Richardson, 806 E. Mason St., Santa Barbara, Calif., LB, **$194,980**, Vic Trace Reservoir, SANTA BARBARA, CALIF. City, City Hall, Santa Barbara, Calif. Bids June 10. CD 5/27.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Centex Constr. Co.** and **Murchison Bros.**, 4911 Greenville St., Dallas, Tex. CA **$5,393,122**. construct, manage and finance 500-unit rental HOUSING Proj., MOUNTAIN HOME, IDAHO. Dpt. Army, Contracting Officer, Air Force Base, Mountain Home, Idaho. CD 5/26, under LB.

▲ **Wetter Constr. Co.**, 17962 Aurora Ave., Seattle, Wash. Day Labor est. **$1,000,000**. 100 HOUSES north of Lynnwood on Seattle-Everett Hy., SEATTLE, WASH. CD 6/7.

Hudson Constr. Co., 1277 W. 24 St., Los Angeles, Calif., LB, **$422,325**, PHYSICAL EDUCATION bldg. at Jefferson High School, LOS ANGELES, CALIF. Los Angeles City School Dist., 1425 S. San Pedro St., Los Angeles, Calif. Bids June 9. CD 5/27.

Wapner & Fremar, 5542 Cahuenega Blvd., Los Angeles, Calif., CA, **$427,058**, Curtis Ave. SCHOOL, MANHATTAN BEACH, CALIF. Manhattan Beach City School District, 1212 Laurel Ave., Manhattan Beach, Calif. Bids April 20, awarded June 7. CD 4/29, under LB.

Nielsen & Nielsen, 1071 Westwood Dr., San Jose, Calif., LB, **$436,226**, Intermediate SCHOOL, SANTA CLARA, CALIF. Santa Clara City Elementary School District, Santa Clara, Calif. Bids June 8. CD 5/19.

Frank Payne, 1234 Fifth St., Berkeley, Calif., LB, **$368,000**. Parkmead Upper Grades SCHOOL, WALNUT CREEK, CALIF. Walnut Creek School District, 1920 Magnolia Way, Walnut Creek, Calif. Bids June 8.

▲ **E. H. Moore & Sons**, 693 Mission St., San Francisco, Calif., LB, **$1,353,000**, John Muir Junior High SCHOOL, SAN LEANDRO, CALIF. San Leandro Unified School District, 451 W. Joaquin Ave., San Leandro, Calif. Bids June 8. CD 5/25.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **P. N. Fackler**, Anchorage, Alaska, LB **$785,769**. est. $811,656, completion of water treatment plant, incl. 61x100 ft. rapid sand filter unit wing, 17x250 ft. rein. con. sedimentation bldg. addn. etc., ENG.-95-507-54-39. FORT RICHARDSON, ALASKA. U. S. Eng., Ancorage, Alaska. Bids June 8. CD 5/12.

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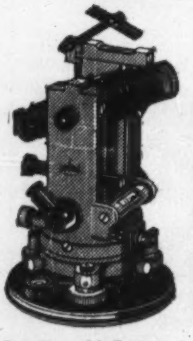

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CANADA

BIDS ASKED—BUILDINGS

Sask., Moose Jaw—STORE—BA 6/14—Walter J. Thorn Ltd., Scott Bldg., soon lets contract retail store corner Cordova and Main Sts., $500,000, L. Finch, 460 Main St., Winnipeg, archt., Simpson-Sears, Ltd., Toronto, Ont., tenant.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Utah Constr. Co.**, 1 Montgomery St., San Francisco, Calif. U.S.A. CA est. **$6,000,000.** 19 story OFFICE, Burrard & Georgia Sts., VANCOUVER, B. C. Burrard Building Operations, c/o C. B. K. Van Norman, archt., 540 Seymour Ave., Vancouver, B. C. CD 5/2/52.

Hill Clark Francis Constr. Co., New Liskeard, Ont. CA **$558,905.** brick, steel, concrete high SCHOOL, SARNIA, ONT. Bd. Educ., M. B. Beasley, secy., Sarnia, Ont. Bids May 18. CD 4/19.

Proposed Projects

WATER SUPPLY

Ala., Cullman—City, WW imprvs., **$435,000,** J. E. O'Toole, Watts Bldg., Binningham, consult. engr.

Ala., Hartselle—City, WW imprvs. **$100,000.** Polgalze & Basenberg, 812 S. 27 Ave., Birmingham, Ala., consult. engrs.

Fla., Holly Hill—City, water treatment and distr. sys. imprvs., over **$100,000.** Bostwick Inc., 211 Broadway St., Daytona Beach, consult. engr.

Fla., Orlando—City, City Hall, water reservoir, over **$150,000.** Robert & Co. Assocs., 96 Poplar St. N.W., Atlanta, Ga., consult. engrs.

Fla., Port St. Joe—City, WW imprvs., **$150,000.** Smith & Gillespie, P.O. Box 1048, Jacksonville, consult. engrs.

▲ **Mo., St. Louis County**—St. Louis County Water Co., W. Victor Weir, pres., 6600 Delmar Blvd., University City, Zone 5, river intake, purification and pumping plant, storage facilities, 30 m.g. per day on 40 acre site on Missouri River 3 mi. upstream from Hall's Ferry Rd. and 36 in. transmission line to connect plant to present distr. sys., tanks, and pumps, est. **$5,000,000;** also similar but smaller plant to be constr. on Missouri River to serve southern part of county, Herbert O. Hartung, production superintendent for plants, Frank E. Dolson, distr. superintendent for distribution lines, both c/o owner.

▲ **N. C., Charlotte**—City, City Hall, water filtration plant at Oakdale and Rozzell Ferry Rds. **$2,500,000.** J. N. Pease & Co., 119½ E. 5th St., consult. engr. CD 12/19/52.

N. C., Tarboro—City, WW Imprvs. **$250,000.** L. E. Wooten & Co., 306 N. Dawson St., Raleigh, consult. engrs.

N. C., Wrightsville Beach—Town, WW imprvs. **$275,000.** H. M. Von Oesen, 1719 Dawson St., Wilmington, consult. engr.

Okla., Sand Springs—City, voted bonds June 1, WW exten. **$380,000.** W. R. Holway, 302 E. 18 St., Tulsa, consult. engr. CD 5/19.

Tenn., Ardmore—City, WW imprvs. **$110,000.** Polglaze & Basenberg, 812 S. 27 St., Birmingham, Ala., consult. engrs.

Tenn., Athens—City, water reservoir and treatment plant, **$750,000.** J. Sanders Parker, 816 8th Ave. S., Nashville, consult. engr.

Tenn., Hendersonville—Sumner Co. Water Dist., Court House, Gallatin, water filtration plant, **$110,000.** J. Sanders Parker, 816 8th Ave. S., Nashville, consult. engr.

Tenn., Mountain City—Town, WW sys. **$225,000.**

▲ **Tex., Marshall**—City, c.i. water mains, **$400,000;** c.i. water distr. lines, **$450,000;** water supply, **$456,000;** water storage, **$175,000;** water pumping station-filtration, **$225,000;** WW rehabilitation, **$150,000.** Homer A. Hunter, 3708 Abrams Rd., Dallas, consult. engr. CD 6/3.

Tex., Pasadena—City, voted bonds June 8, water lines, **$225,000;** water storage, **$75,000;** WW sys. rehabilitation, **$41,500.** CD 6/3.

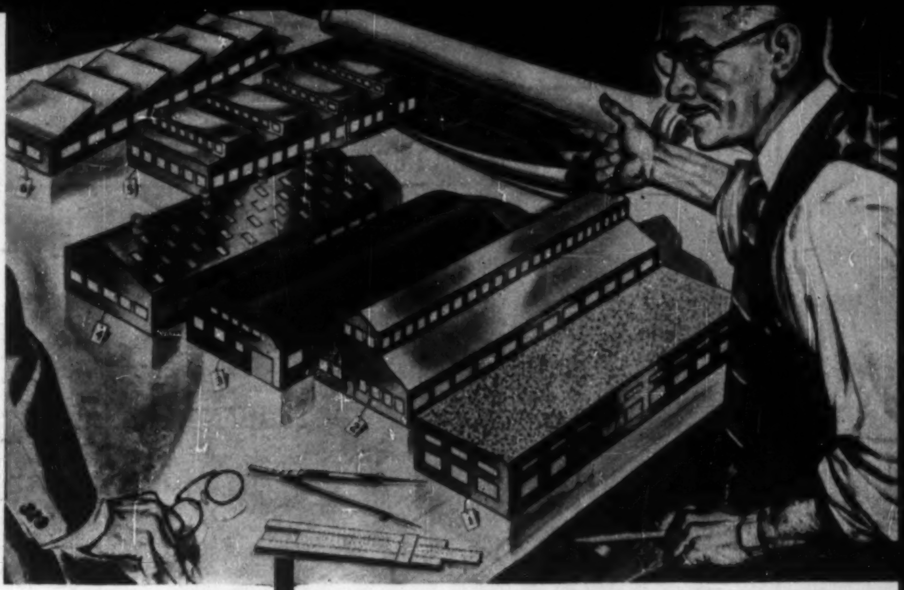
▲ **Va., Arlington**—Arlington Co., Dpt. P. Service, Arlington Court House, constr. 6 m.g. reservoir at Minor Hall, **$500,000;** 36 in. water main from Glebe and Military Rds. to Lee Hy. and N. Monroe St., **$600,000.** CD 11/6.

Que., Louiseville—Municipality, 6,000 ft. of 12-in. water mains on St. Ursule St., etc. **$200,000.** R. Lemay, Town Hall, town engr.

SEWERS, WASTE DISPOSAL

Ala., Albertville—City, sanitary sewer imprvs., **$100,000.** J. B. Converse & Co., 106 St. Joseph St., Mobile, consult. engr. CD 12/23/53.

▲ **Ala., Birmingham**—Jefferson Co., Court House, digestors for Village Creek Sewage Treatment Plant, Contr. 3, **$1,000,000.** J. W. Goodwin Eng. Co., 2111 Seventh Ave. S., Birmingham, consult. engr. CD 11/11.



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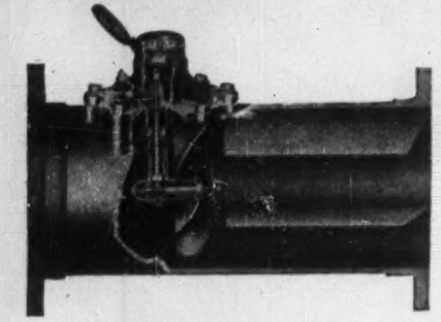

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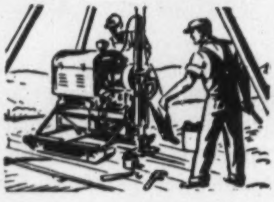

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Ala., Hartselle—City, sanitary sewerage imprvs. $100,000. Polglaze & Basenberg, 812 S. 27 Ave., Birmingham, Ala., consult. engrs.

▲ **Fla., Clearwater**—Long Key Sewer Dist., c/o H. S. McPherson, City Hall, Pass-A-Grille, sanitary sewer sys., $1,500,000, Russell & Axon, P.O. Box 143, Daytona Beach, consult. engrs.

Fla., Kissimmee—City, sewage treatment plant. $500,000. Smith & Gillespie, P.O. Box 1048, Jacksonville, consult. engrs. CD 5/5.

▲ **Fla., Orlando**—City, sanitary sewer imprvs., $1,550,000; storm sewers, $2,000,000. CD 5/18/50.

Fla., Winter Park—City, sanitary sewerage imprvs. $225,000. Albert O'Neall, 510 Rugby Ave., Orlando, consult. engr.

Ga., Folkston—City, sewage treatment plant, etc. $100,000. Russell & Axon, P.O. Box 1431, Daytona Beach, consult. engrs.

Ga., Garden City (Savannah)—Town, sewage disposal plant. $200,000. Hawe Engrg. Co., 7 W. York St., Savannah, Ga., consult. engr.

Ga., Thomasville—City, sewage treatment plant addn. $150,000. Wiedeman & Singleton, P.O. Box 1878, Atlanta, Ga., consult. engrs.

Ill., Mount Vernon—City, sewer sys. extens. $375,000. Setz, Korn & Phillips, 914 Main St., consult. engrs. CD 5/5.

Ind., Portland—City, City Hall, sewage plant, $500,000; imprv. sewers, $250,000. Lloyd & Phelps Eng. Co., 835 K of P Bldg., Indianapolis, consult. engr. CD 8/26/53.

▲ **Ind., Shelbyville**—City, Philip H. Banawitz, mayor, sewage treatment plant. $1,250,000. Alfred LeFeber & Assocs., 2933 Woodburn St., Cincinnati, O., consult. engrs. CD 7/24.

Me., Portland—City, P. Wks. Dpt., City Hall, approx. 1 mi. 36 or 48 in. pipe sewers, Fore River Interceptor. $200,000. Duffill Assoc., 80 Boylston St., Boston, consult. engrs.

Mass., Saugus—Town, Town Hall, sewers, drains, $250,000. Fay, Spofford & Thorndike 11 Beacon St. Boston, consult. engrs. CD 4/1/53.

Mich., Kalamazoo—City, Twp. and State of Michigan, E. H. Ellicott, city mgr., drainage sys. to keep area around Westnedge Hill free from water. $402,000.

Mich., Owosso—City, Charles Moore, mayor, $170,000 bond election Aug. 3, storm sewer. CD 4/16.

N. C., Cullowhee—Western Carolina Teachers College, Cullowhee, sewage disposal plant, $200,000. Six Associates, 1095 Hendersonville Rd., Asheville, consult. engrs.

N. C., Durham—City, Third Fork Sewage Treatment Plant addn. Approx. $200,000. Piatt & Davis, 111 Corcoran St., consult. engrs. CD 5/17/51.

▲ **N. C., Gastonia**—City, sewage disposal plant, $1,500,000. Harwood Beebe Co., 171 Pine St., Spartanburg, consult. engr.

N. C., Tarboro—City, sanitary sewer imprvs. $300,000. L. E. Wooten & Co., 306 N. Dawson St., Raleigh, consult. engr.

▲ **O., Salem**—City, Salem, sewage disposal plant. Alt. enlarge present plant, $750,000. both include intercepting sewers, $1,142,400. Malcolm Pirnie Engineers, 25 W. 43 St., New York, N. Y., consult. engrs. CD 3/1.

Okla., Sand Springs—City, voted bonds June 1, sewage disposal plant. $220,000. W. R. Holway, 302 E. 18 St., Tulsa, consult. engr. CD 5/19.

▲ **Tenn., Athens**—City, sewage disposal sys., $1,250,000. Schmidt Engr. Co., Federal Savings & Loan Assn. Bldg., Chattanooga, consult. engr. CD 1/19/49.

Tenn., Kingsport—City, sewage disposal plant, $325,000. Wiedeman & Singleton, P O. Box 1878, Atlanta, Ga., consult. engrs.

Tenn., Gallatin—City, santiary sewer imprvs. $550,000. J. Sanders Parker, 816 8th Ave. S., Nashville, consult. engr.

Tenn., Kingston—City, sanitary sewers, $450,000.

Tenn., Morristown—City, sanitary sewer imprvs. $100,000. Warren, Powell & Hendon, Law Bldg., Asheville, consult. engrs. CD 2/17/47.

Tex., Amarillo—City, storm sewers, $150,000; sewage disposal unit, $175,000; sanitary sewers, $200,000. H. R. Smith, city engr. CD 2/8/52.

Tex., Houston—C. O. Beeler, 4715 Calhoun St., storm sewers, $64,500; sewage disposal plant, $61,000; sanitary sewer collection lines, $66,120, portion of Scenic Woods Subdivision. Frank W. Metyko, Scanlan Bldg., consult. engr.

Tex., Houston—Jack Perry, 1907 Bellmeade St., storm sewers, 60,000; sanitary sewers, $62,500, in Scenic Woods Subdivision extens. outside city limits. Frank W. Metyko, Scanlan Bldg., consult. engr.

Tex., Houston—Lewis C. Tyra and Dan McCrary, 5519 Lawndale St., Section 1, sanitary sewers, $67,500; storm sewers, $65,000, 127-acre tract, southwest of here.

Tex., Houston—LeRoy Walker and Hank Morris, 5603 Belneath St., sanitary sewers, $65,000; storm sewers-drainage, $60,000. Allen-Genoa Rds. in new Gulf Freeway Terrace Addn.

Tex., Houston—Hill P. White & Assocs., 3803 Inwood St., storm sewers, $60,000; sanitary sewers, $65,000, in Braes Heights.

Tex., Pasadena—City, voted bonds June 8, sewage disposal unit, $150,000; sewer collection lines, $313,500; storm sewers, $175,000.

Tex., Pasadena—Embe Development Co., 101 Bearle St., Houston, sanitary sewers, **$64,500**; storm sewers, **$60,000** Third Sect. Frontier East Addn. C. E. Pearson, 1010 Winbern St., Houston, consult. engr.

Tex., Pasadena—James Martin Hill, Jr., Builder, Pasadena, sanitary sewers, **$61,000**; storm sewers, **$60,000**.

Tex., San Marcos—Cone Mills, Inc., Greensboro, N. C., sanitary sewer sys., **$60,000**; storm sewers, some open drainage, **$65,000**, 200-acre site for Textile Mill. Dan McConnell, c/o owner, ch. engr.

Tex., Spring Branch—Robert H. Lupton, 4207 Byron St., Houston, sanitary sewers, **$70,000**; storm sewers, **$67,500**, northwest of here.

▲ **W. Va., Wheeling**—City, City Bldg., interceptor sewerage sys. **$7,500,000**. J. C. Boyd, City Bldg., city engr. CD 6/23/47.

Ont., Byron—Westminister Township, Council, Wellington Road, London, 2 sections of concrete pipe sewers, West, 21- to 42-inch, **$83,000**; East 24-in. to 42-in. **$52,000**. W. M. Veitch, 18 Evergreen Ave., London, consult. engr.

BRIDGES

Fla., Pass-A-Grille—Englecrest Co., 6509 Fifth Ave., St. Petersburg, Bridge on 20 St. and Gulf Blvd. over to Mud Key, **$300,000**.

Ga., Atlanta—Fulton Co., Court House, bridge on State Rte. 141, **$100,000**.

RHODE ISLAND—State of Rhode Island and Providence Plantations, F. A. Adams, purch. agt., State House, Providence,

Manville—replace bridge. **$250,000**. C. W. Riva Co., 511 Westminster St., Providence, engr.

▲ **RHODE ISLAND**—State of Rhode Island and Providence Plantations, F. A. Adams, purch. agt., State House, Providence,

Tiverton-Portsmouth—const. bridge pavement and approach roads to Sakonnet River Bridge—to advance after superstructure. **$1,160,000**. Charles Maguire & Assoc., 1015 Turks Head Bldg., Providence, consult. engrs. CD 8/14/51.

Wis., Milwaukee—City, City Hall, Hawley Road Viaduct. **$700,000**. Lloyd D. Knapp, city engr. George Ashton, bridge engr. CD 12/3/43.

▲ **Quebec**—Province of Quebec, Dpt. P. Wks., Quebec City,

Drummondville—bridge to replace the existing bridge St. Francis River. **$1,000,000**. O. Desjardines, c/o owner, engr.

STREETS AND ROADS

Ala., Gadsden—City, 1954 street imprvs., **$200,000** Troy Watford, Gadsden, consult. engr.

Ala., Russellville—City, street paving, **$225,000**. Vernon P. Crockett, Sheffield, consult. engr.

Fla., Gainesville—City, street imprvs., **$100,000**. R. B. Sensabaugh, City Hall, city engr.

▲ **Fla., Orlando**—City, street imprvs., **$2,250,000**.

Fla., Surfside—City, paving off-street parking areas, **$250,000**.

Ga., Albany—City, City Hall, 1954 street imprvs., **$500,000**. CD 11/11/53.

Mich., Kalamazoo—Kalamazoo Twp., 7½ mi. hard surfaced roads, 7 mi. sidewalk also 2½ mi. curbs and gutters. **$180,000**. William Wilins, town engr.

Mich., Port Huron—City, J. F. Gibbs, city mgr., c. conc. 17 streets, b. conc. 19 streets, **$343,000**. Allan T. Carlisle, city engr.

Neb., Omaha—City, City Hall, 18 and Farnam Sts., considering the resurf. of Cuming St. from **16 to 29** Sts. as an addnl. re-surf. project, **$90,000**; Leavenworth St. from 31 to 48 St. as an addnl. resurf. proj., **$80,000**. foregoing to be paid for by transferring funds from another department. E. W. Woodbridge, city engr. CD 3/9/53.

O., Cincinnati—Cedar Grove Homestead Assoc., 509 Central Ave., street, sewer and water lines for new subdivision on Sheffield Rd., near Cameron Rd., **$325,000**. Gordon Neal & Assoc., Kemper Lane, consult. engrs.

S. C., Charleston—City, street extens. of Maple and Lee Sts. over Southern Ry. **$100,000**. Joseph Needle, c/o owner, city engr. CD 8/11/44.

Tenn., Winchester—City, street imprvs. **$225,000**.

▲ **TEXAS**—Texas Turnpike Auth., c/o Armistead Rust, Chmn., San Angelo,

Dallas and Tarrant Counties—approx. 29¾ mi. Dallas-Fort Worth Toll Rd. **$52,000,000**. Coverdale & Colpitts, 120 Wall St., New York, N. Y. consult. engrs. CD 11/22/44.

Tex., Houston—A. R. Anderson, Westfield Rd., plans by Zimmerman & Bible, archts.-engrs., 500 Stuart St., 1,800-auto parking center, hard type paving, semi-shelter type, Richmond Ave. and S. Post Oak Rd. area, **$200,000**. Walter P. Moore, 2 Pinedale St., consult. engr.

Tex., Lamesa—Dawson Co., Lamesa, road grading, drainage structures, surf., Precinct No. 1, **$125,000**; Precinct No. 2, **$125,000**; Precinct No. 3, **$125,000**; Precinct No. 4, **$125,000**.

Ont., Owen Sound—City, street paving, **$165,000**. J. H. Beatty, Court House, city engr.

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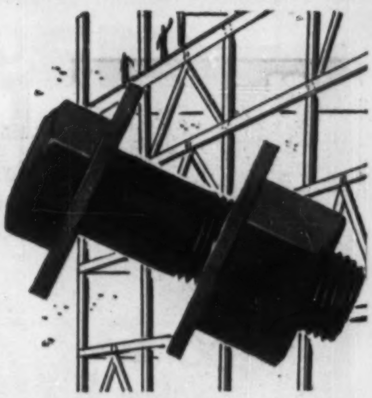

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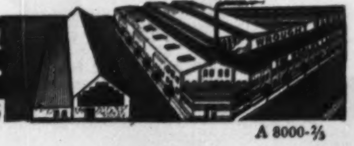

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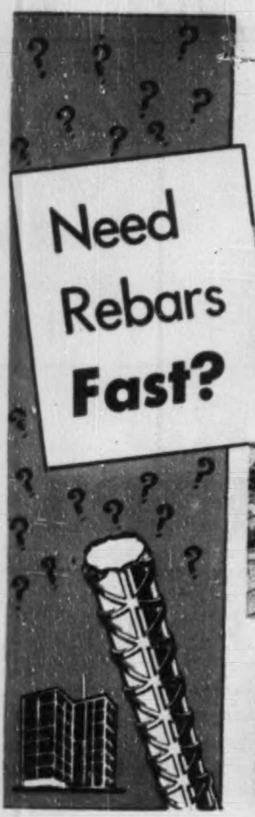

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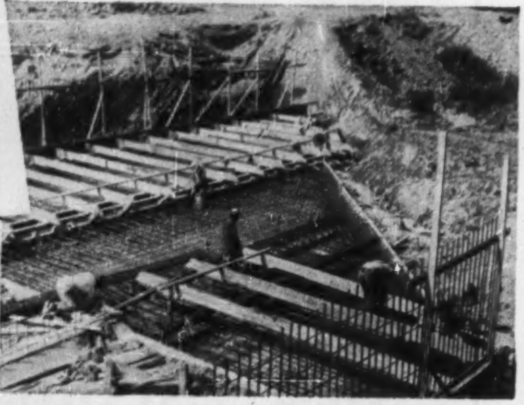

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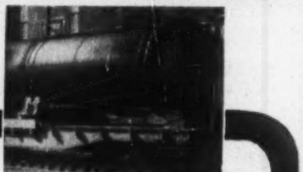

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EARTHWORK, WATERWAYS

Tex., Lubbock—Buffalo Lakes Committee of Chamber of Commerce, O. L. Bvrd, Chmn., Lubbock, rein.-con. and earthen dam across Yellowhouse Canyon for recreational lake. **$250,000.** Parkhill, Smith & Cooper, 1414 Avenue J. consult. engrs.

▲† **Washington**—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, four AAA Projects at unspecified locations. **$750,000** each.

▲ **Wisconsin**—Wisconsin Valley Improvement Co., Wausau, reservoir on Little Eau Pleine River in Marthon, Wood and Portage Counties, 18 mi. long, 7 mi. wide covering 27,500 acres, **$6,000,000.**

AIRPORTS

† **La., Alexandria**—MAINTENANCE HANGAR—U. S. Eng., P.O. Box 867, Little Rock, Ark., base maintenance hangar, Alexandria Air Force Base, ENG-03-050-54-57, **$500,000 to $1,000,000.**

† **Mass., Bedford**—SHOPS—U. S. Eng., 857 Commonwealth Ave., Boston, communications and electronic shops, **$60,000,** Joseph L. Paley, 125 Coolidge St., Brookline, consult. engr.; engine build-up shops, **$60,000.** Anderson-Nichols & Co., 150 Causeway St., Boston, consult. engrs., at Hanscom Air Force Base.

† **Mass., Falmouth**—SHOPS, ETC.—U. S. Eng., 857 Commonwealth Ave., Boston, engine build-up shops, **$60,000,** Anderson-Nichols & Co., 150 Causeway St., Boston, consult. engrs.; plans by James H. Ritchie & Assoc., 135 Clarendon St., Boston, ready crew bldgs., **$60,000,** Otis Air Force Base. CD 7/10/52.

† **N. H., Portsmouth**—AIRPORT BLDGS. FACILITIES—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., target and intelligence bldg., **$60,000,** Utility Eng. Corp., 359 Boylston St., Boston, Mass., consult. engrs.; plans by Desmond & Lord, 6 Beacon St., Boston, Mass. R.E.C. facilities, **$60,000;** commissary bldg., **$60,000,** at Portsmouth Air Force Base, CD 9/13/51.

† **Wash., Spokane**—UTILITIES, etc.—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, utilities, **$50,000;** crash and structural fire station, **$75,000** and storm drainage job, **$100,000.** Fairchild Air Force Base. CD 10/31/51.

Wis., Marshfield—AIRPORT—City, airport, **$365,000.** Perry-Carrington Eng. Co., 349 S. Central Ave. engr. CD 1/26/45.

▲† **Alaska**—UTILITIES, etc.—U. S. Eng., Anchorage utilities, **$1,500,000;** infirmary, **$750,000;** officers mess, **$350,000;** civilian mess, **$350,000;** AIO shops **$175,00;** electrical distr. facilities, **$100,000.**

▲† **Alaska, Naknek**—MISC. FACILITIES, COMMUNICATIONS FACILITIES—U. S. Eng., Anchorage misc. facilities, **$1,500,000;** communications facilities, **$100,000** at Air Force Base.

LATIN AMERICA

Mexico, Tampico — HOSPITAL — Petroleos Mexicans, Juarez, 104, Mexico City, plans 100-bed oil workers hospital. **$800,000.**

PUBLIC BUILDINGS

▲ **Calif., San Leandro**—SCHOOLS—San Leandro Unified School District, 451 Hepburn St., voted **$4,000,000** bonds, new high school, furnishing 2 junior high schools, elementary school and portion of work on 2 elementary schools. CD 4/17/52.

▲ **Colo., Littleton**—SCHOOL—School District No. 1. Arapahoe County, 177 S. Grant St., voted bonds, 72,000 sq. ft., high school, **$1,350,000.** Earl C. Morris, 122 E. 19 Ave., Denver consult. engr. CD 5/4.

Fla., Orlando—HEALTH CENTER—Orange Co., Court House, plans by James B. King, 318 W. Colonial St., health center. **$300,000.**

▲ **Ia., Cedar Rapids**—SCHOOLS—Bd. of Educ., 346 2 Ave. S.W., voted **$5,950,000** bonds June 1, 2 senior high schools. CD 5/26.

▲ **Kan., Leavenworth**—SCHOOL—Bd. Educ., **$1,659,000** bond election Aug. 3, elementary and senior high school. T. W. Williamson & V. H. Loebsack, 1245 Topeka Blvd., Topeka, archts. Apr. 6 election declared void on account of error. CD 4/27.

Kan., McPherson—ARMORY—City and Kansas National Guard of Topeka, plans by John Brown, state archt., State house, Topeka, armory, **$100,000.**

▲ **Mass., Amherst** — STUDENT UNIT — University of Massachusetts, Alumni Bldg. Assoc., plans by Louis W. Ross, 131 State St., Boston, student union, **$2,000,000.**

Mass., Chelsea—ARMORY—State, Military Dpt., 905 Commonwealth Ave., Boston, armory, **$150,000.**

† **Mass., Quincy**—TRAINING CENTER—First Naval Dist., 495 Summer St., Boston, plans by Kelly & Gruzen-William Davies Assoc., 73 Tremont St., Boston, U. S. Naval and U. S. Marine training Center Sea St. Permanent constr., **$400,000.**

▲ **Mich., Oak Park**—SCHOOL—City, Louise Shaw, city clk., **$1,500,000** bond election July 12, school constr. O'Dell, Hewlett & Luckenbach, 950 N. Hunter Blvd., Birmingham, archts.

Mo., DeSoto—SCHOOL—DeSoto Public School, Harry M. Talbot, supt. Schools, voted **$400,000** bonds, 1 story, 38,500 sq. ft. brick, rein.-con., masonry high school. Charles W. Lorens, 700 N. Dallas Rd., Box 1378, Rte. 13, Kirkwood, Zone 22, archt.

Mo., Mexico—SCHOOL—Bd. Educ., plans by Marshall & Brown, 1016 Baltimore St., Kansas City, Eugene Field School addn., **$350,000**; Northeast School, addn., **$300,000**. CD 11/2/53.

N. H., Seabrook—SCHOOL—Town, Supt. Schools, Seabrook, plans by Alfred T. Granger Assoc., Granger Circle, Hanover, elementary school, Walton Rd. Approx. **$300,000**.

▲ **N. J., Cedar Grove**—POWER HOUSE—Essex Co. Bd. Freeholders, Hall of Records, Newark, power house to serve Essex County Hospital and Essex Mountain Sanatorium, **$1,600,000**.

N. Y., Brooklyn—SCHOOL ALTERATIONS—Bd. Educ., 49 Flatbush Ave., Exten., Zone 1, 4-story public school alterations, 1851-93 E. 17 St. **$300,000**. M. L. Radoslovich, c/o owner, engr.

▲ **N. Y., Roslyn**—SCHOOLS—Roslyn School Dist., Roslyn. 600-pupil Junior High School, 20-acre tract, Locust Lane and Powerhouse Rd., **$1,600,000**; present high school alterations, addns., **$2,175,000**.

O., Trotwood—SCHOOL—Bd. Educ., Trotwood, bond election Nov. 2, school. **$375,000**.

Okla., Alva—COURT HOUSE—Woods Co., Alva, bond election July 6, court house and jail, **$495,000**. CD 11/17/48.

S. C., Greer—SCHOOL—District 520, School Bd. Trustees, Court House, Greenville, S. C., St. Mark Negro elementary-high school, **$781,000**.

Tex., Baytown—SCHOOLS—Goose Creek Independent School Dist., Baytown, voted bonds June 1, elementary school, **$315,000**; Lamar Highland Elementary addns. **$345,000**.

Tex., Slaton—HIGH SCHOOL—Slaton Independent School Dist., Slaton, plans by Butler-Kimmel Co., 412 Avenue M, Lubbock, high school. **$300,000**. CD 6/3.

▲ **Tex., Victoria** — SCHOOLS — Victoria Independent School Dist., Victoria, Junior High School, **$810,000**; elementary school, **$340,000**; 8-room addns. to Shielus-Hopkins Schools, **$350,000**. CD 9/30/52.

▲ **Utah, Farmington**—HIGH SCHOOL—Davis Co. School Bd., Samuel Morgan, supt., Farmington, voted bonds, Bountiful High school expans., Davis High School imprvs., and three new elementary schools etc. **$2,700,000**.

Utah, Green River—SCHOOL—Emery Co. School Dist., Green River, plans by Dean L. Gustavson-John W. Sugden, assoc.-designer, 3182 S. Highland Dr., Salt Lake City, school. **$330,000**.

Wash., Kennewick—SCHOOL—School Dist. 17, plans by J. S. Villesvik, Liberty Bldg., Yakima, Lakeside Elementary School, **$600,000**. CD 12/8/53.

Wash., Mukilteo—SCHOOL—School Dist. No. 6, plans by Waldron & Dietz, Hoge Bldg., Seattle, Zone 4, junior high school, **$500,000**. CD 2/11.

Wash., Seattle—SCHOOL—P. Schools, 815 Fourth Ave. N., plans by Naramore, Bain, Brady & Johanson, 904 Seventh Ave., high school in southwest Seattle near 25 Ave. S.W. and Thistle St., **$2,750,000**. CD 1/12/54.

▲ **Wash., Seattle**—SCHOOLS—P. Schools, 815 Fourth Ave. N., plans by J. W. Maloney, Central Bldg., junior high school adjacent to Jefferson Park Golf Course on Beacon Hill, **$2,250,000**; plans by T. Damm, 516 James St., Zone 4, Matthews Elementary School at E. 105 St. and 30 Ave. N.E., **$600,000**; plans by P. Thiry, 800 Columbia St., Zone 4, Northgate Elementary School at E. 120 St. and First Ave. N.E., **$600,000**. CD 3/15.

Wis., DeForest—SCHOOL—DeForest Union Free High School, plans by Law, Law, Potter & Nystrom, 121 Pinckney St., Madison, high school addn., **$300,000**.

▲ **Wis., Milwaukee**—SCHOOLS—Bd. School Directors, 1111 N. 10 St., Zone 3, Junior High School, N. 84 St. and W. Burleigh St., **$2,500,000**; plans by Maynard, Meyer & Assocs., 8225 W. Center St. West Division Senior High School, **$1,000,000**.

Wyo., Thermopolis—SCHOOL ADDN.—Bd. of Educ., Thermopolis, **$300,000** bond election June 22, high school addn. CD 1/15.

Alta., Bowden—DELINQUENTS BLDG., etc.—Province of Alberta, Dpt. of Attorney General, Edmonton, plans by R. Clarke, Dpt. P. Wks., Edmonton, Alta., juvenile delinquents bldg. and staff office, **$369,500**. CD 4/5/53.

Newfoundland, Corner Brook—SCHOOL—Regional High School Bd., 18 Brook St., 2 story, steel, brick school. **$650,000**.

Ont., Barrie—POLICE HEADQUARTERS—Dpt. of P. Wks., Toronto, plans by G. N. Williams, c/o owner, Ontario Provincial Police Headquarters District No. 7 replacement and staff houses, **$400,000**.

▲ **Ont., Niagara Falls**—HOSPITAL—Greater Niagara Hospital Trust, A. E. Parsons, pres., Niagara Falls, plans by John B. Parkin Assocs., 717 Church St., Toronto, 1 and 2 story, 202-bed, 60 bassinettes, steel, brick hospital, nurses residence and training school at Poplar Park, **$3,000,000**. CD 10/16/51.

▲ **Ont., Ottawa**—HEADQUARTERS—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., plans by A. E. Gardner, c/o owner, Pentagon-type National Defenie Headquarters on Base Line Road, Nepeau Township, southwestern part of city, **$12,000,000**. CD 3/12/51.

COMMERCIAL BUILDINGS

Calif., Anaheim—DWELLINGS—Monogram Home Builders, 152 N. La Brea Ave., Los Angeles, plans by L. C. Major & Assocs., 511 N. La Cienega Blvd., Los Angeles, 33 frame, stucco dwellings, **$300,000**.

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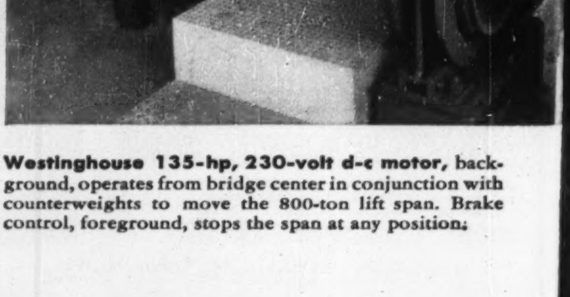
New York Central Railroad Bridge No. 8, Cleveland, O., has a 250′ lift span—twice as long as the one it replaced. Span moves 1′ a second to a height of 90′. Towers are 159′ high. Consultant: Howard, Needles, Tammen & Bergendoff, Kansas City, Mo., New York, N.Y., Cleveland, O. Erected by: McDowell Company, Inc., Cleveland, O. Electrical Contractor: The Dingle-Clark Co., Cleveland, O.



Westinghouse 135-hp, 230-volt d-c motor, background, operates from bridge center in conjunction with counterweights to move the 800-ton lift span. Brake control, foreground, stops the span at any position.

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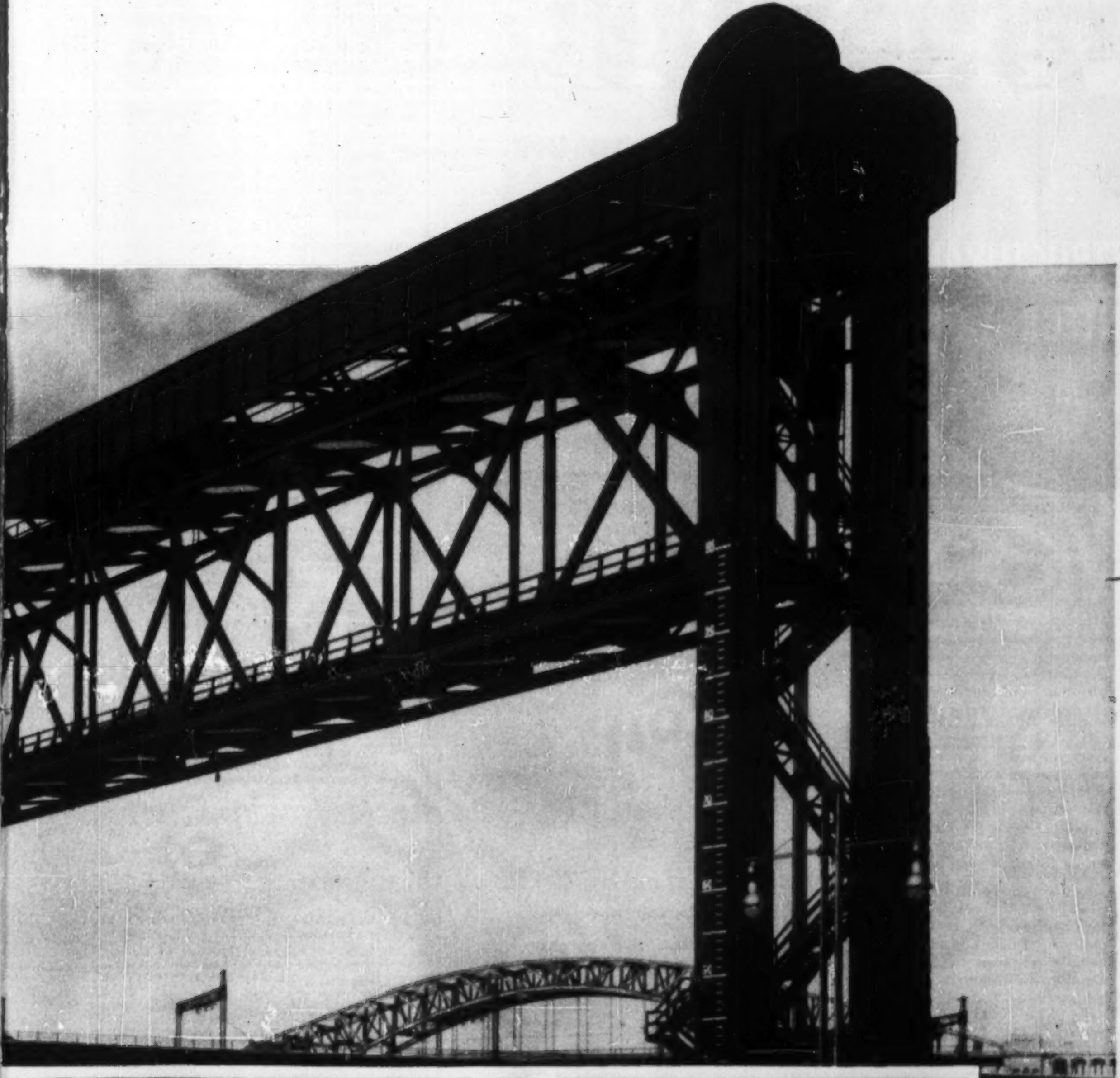

Westinghouse generator set, foreground, generates d-c power—150 kilowatts at 230 volts—to operate drive motor in center of bridge. Directly behind the generator set: control switchboard.

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STRUCTURAL
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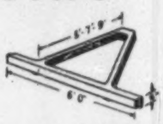

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Calif., Garden Grove—DWELLINGS—**W. K. Murphy, c/o** Roy M. Watkins & Assocs., archts., 810 Coast Hwy., Newport Beach, 78 frame, stucco dwellings in Tract 1913, **$750,000.**

▲ **Calif., Richmond**—HOMES—Groom-Moyers Co., Hayward, 850 more homes on adjacent 257-acre tract. **$6,000,000.**

Calif., Santa Ana—DWELLINGS—Federal Construction Co., c/o Wm. M. Bray, archt., 962 N. La Cienga Blvd., Los Angeles, 30 frame, stucco dwellings, **$300,000.**

▲ **Calif., Van Nuys**—DWELLINGS—Bonnie Brae Gardens, 463 S. Robertson St., Los Angeles, 121 frame, stucco dwellings in the Van Nuys District, **$1,212,700.**

Calif., Whittier—DWELLINGS—Midland Properties, 450 S. Beverly Dr., Beverly Hills, plans by Wm. M. Bray, 962 N. La Cienga Blvd., Los Angeles, 75 frame, stucco dwellings, **$700,000.**

▲ **Ill., Joliet**—ACADEMY—Sisters of St. Francis, Larkin and Ingall Aves., girls academy, **$2,000,000.**

Ind., Anderson—LIBRARY—Anderson College, Anderson, plans by Arthur Henning, 514 Anderson Bank Bldg., 2 story, brick, stone library. **$500,000.**

Ind., Fort Wayne—MOTEL—Harold Van Orman, Jr., Van Orman Hotel, plans by A. M. Strauss, Inc., archt. and engr., Strauss Bldg., Fort Wayne, V-shaped motel to be Van Orman Northcrest, Road 324 and U. S. 27, incl. supper club. **$750,000.**

Ia., Mount Vernon—DORMITORY—Cornell College, Mount Vernon, dormitory, **$600,000.**

Ky., Louisville—NURSES HOME and SCHOOL—St. Anthony's Hospital, Barrett Ave. and St. Anthony Place, plans by Thos. J. Nolan & Sons, Kentucky Home Life Bldg., 4 story, 340x360 ft., brick, concrete nurses home and school. **$700,000.**

Md., Takoma Park—OFFICE—Suburban Trust Co., 8252 Georgia Ave., Silver Spring, plans by Paul Kea, 5109 Baltimore Ave., Hyattsville, central office, New Hampshire Ave. and Sheriden St., **$500,000.**

▲ **Mass., Boston**—DEPARTMENT STORE—Jordan Marsh Co., 450 Washington St., plans by Perry, Shaw & Hepburn, Kehoe & Dean, 31 St. James Ave., 6 story, bsmnt., department store Unit 3, Avon St., **$3,000,000.** CD 3/10/53.

Mass., Brookline—HOSPITAL—Peter Bent Brigham Hospital, 721 Huntington Ave., plans by Marcus & Nocka, 251 Columbus Ave., Boston, Pearl Memorial Hospital addn., **$500,000.** CD 5/14.

Mass., Dedham — SCHOOL — St. Mary's R. C. Parish, Msgr. Mark C. Driscoll, pastor, High St., Dedham, parochial school, **$450,000.**

Mass., Holyoke—CHURCH—First Lutheran Church, Dr. W. C. Narx, chn. Bldg. Comn., 197 Chestnut St., plans by Bessell & Matz, 213 E. 38 St., New York, N. Y., church and parish house, Northampton St. **$400,000.**

Mass., Northampton—DORMITORY—Smith College, College Hall, Northampton, dormitory, (Zisknid Hall), **$500,000.**

Mass., Worcester — DORMITORY — Assumption College, 670 W. Boylston St., plans by O. E. Nault & Sons, 48 Hamilton St., 4 story, 40x340 ft., steel dormitory, Salisbury St. **$600,000.** CD 3/25.

Mo., Kansas City—CHURCH—Nazarene Church, 2950 Troost St., Kansas City, Mo., plans by K. O. von Achen, Porter Bldg., Kansas City. Mo., church, **$500,000.**

▲ **Mo., Kansas City**—HOSPITAL—St. Margaret's Hospital, 8 and Vermont St., hospital addn., **$2,500,000.**

Mo., St. Louis—SUPERMARKET—Kroger Co., 1311 S. 39 St., Zone 10, plans by Hellmuth, Yamasaki & Leinweber, 825 Locust St., Zone 1, 1 story, brick, steel, rein.-con. supermarket and parking facilities, Grand Blvd. and Keokuk St., **$300,000.**

▲ **N. J., Asbury Park**—APARTMENT—David Cronheim, 39 Branford Place, Newark, apartment bldg. on square block facing Boardwalk, **$1,000,000.**

N. Y., Brooklyn—APARTMENT—Parklane Development Corp., 26 Court St., Zone 2, plans by Morris Rothstein & Son, 186 Joralemon St., Zone 2, 6-story apartment, 2265 Ocean Parkway, **$750,000.**

▲ **N. Y., New York**—APARTMENTS—Berne Constr. Co. Inc., 111 E. 56 St., Zone 22, project abandoned, two 20-story apartments, 408-418 W. 57 St. and 442-446 W. 57 St. est. **$3,000,000.** Maxon, Sells & Ficke, 724 Fith Ave., Zone 19, archts. CD 4/1.

▲ **N. Y., New York**—APARTMENT—George S. Gregory, c/o Samuel Paul, archt., 89-51, 164 St., Jamaica Zone 3, 17-story apartment, 442-446 E. 79 St. **$1,700,000.**

N. Y., New York—CLINIC—New York Medical College Flower Fifth Ave. Hospital, 1240-8 Fifth Ave., Zone 29, plans by Bessell & Matz, 213 E. 38 St., Zone 16, hospital clinic alterations at 3-21 E. 105 St. **$400,000.**

▲ **N. Y., White Plains-Greenburgh**—SHOPPING CENTER—Central Westchester Shopping Center, c/o Jerome Dansker, 511 Fifth Ave., New York, Zone 17, plans by Tito Di Vincenzo, 2 Columbus Circle, New York, Zone 19, shopping center 22-acres on west side of Central Park Ave., **$2,000,000.**

N. Y., Woodside—APARTMENT—44-60 Apartments, Inc., c/o Unger & Unger, archts., 130 Broadway, Brooklyn Zone 11, 6-story apartment, 60 St., northwest corner of 44 Ave. **$550,000.**

N. D., Grand Forks—BANK—Red River National Bank, E. A. Tyoer, Bldg. Dpt. Mgr., First Service Corp., 1st. Natl.-Soo Lines Bldg., Minneapolis, Minn., plans by Bergstedt & Hirsch, 695 Endicott on Robert St., St. Paul, Minn., remodel 3-story bsmnt. bank, **$300,000.**

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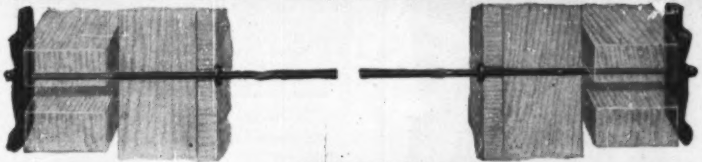
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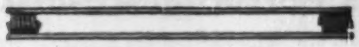
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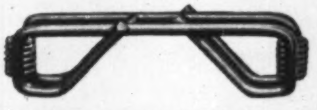
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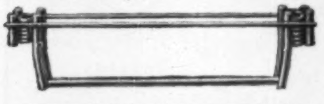
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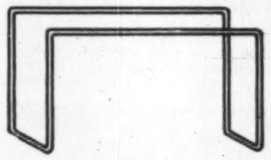
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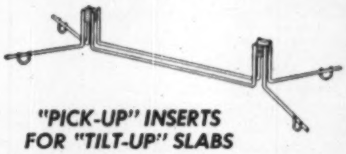
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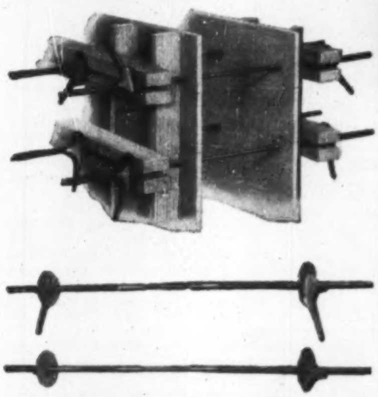
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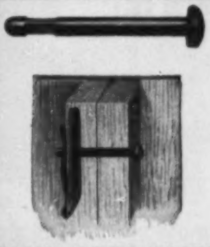
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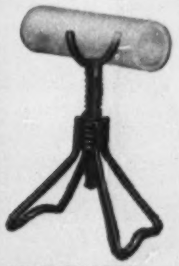
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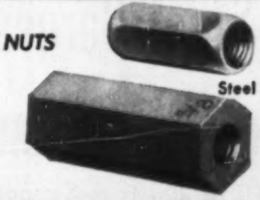

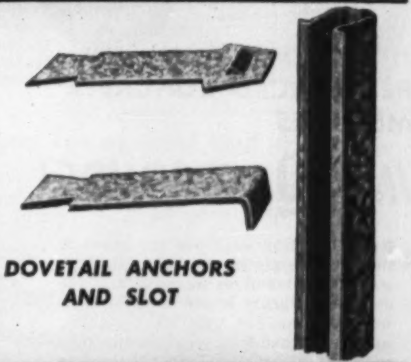
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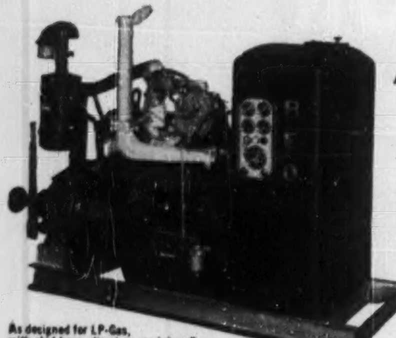

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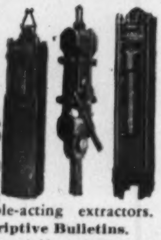

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O., Toledo—HIGH SCHOOL—Catholic Diocese, Bishop Geo. Rehring, 2544 Parkwood St., high school, W. Bancroft St., opposite Ottawa Park. to be built and operated by Oblate Fathers of St. Francis de Sales, **$750,000.**

O., Youngstown—SCHOOL—Our Lady of Perpetual Help School, Rev. Aurelius Petric, Farrell, Pa., 1 and 2 story school and adjoining church, on Youngstown-Poland Rd. **$500,000.**

▲ **Ore., Salem**—STORE—Meier & Frank Co., 621 S.W. 5 St., Portland, plans by Welton Beckett & Assocs., 5657 Wilshire Blvd., Los Angeles, Calif. and James L. Payne, Salem, archts.-engrs., 2-story 160,000 sq. ft. department store with covered and roof parking facilities. **$8,000,000.** CD 6/3.

Pa., Pittsburgh—APARTMENT—Behrman & Passell, Bigelow Apartments, Webster Ave., plans by Murray Levine, 400 S. Homewood St., 3 story bsmnt. 60x334 ft., brick, block, steel frame apartment, 5th Ave. **$300,000.**

▲ **R. I., Providence**—SHOPPING CENTER—Owner, c/o Ira Rakatansky, archt., 48 Arcade Bldg., Providence, shopping center, Willard Center Development, **$2,000,000.**

R. I., Woonsocket—TELEPHONE BLDG.—New England Telephone & Telegraph Co., 185 Franklin St., Boston, Mass., 2 story bsmnt., 322,000 cu. ft., 88x100 ft. telephone bldg., **$300,000.** Jenks & Ballou, 2600 Industrial Trust Bldg., Providence, consult. engrs.

▲ **Tenn., Nashville**—OFFICE—Life & Casualty Insurance Co., 459 Fourth Ave. N., plans by Edwin Keeble, Cotton States Bldg., office, **$3,000,000.** CD 2/24.

Tex., Amarillo—DWELLINGS—Munday-Cooper Homes, Inc., 3417 Fillmore St., 42 addnl. frame dwellings, concrete slab fdn. **$310,000.**

Tex., Dallas—HOUSING—Harrill & Smith Builders, 3807 Poinsetta St., Houston, masonry housing proj. in Glen Oaks Area, **$300 000.**

Tex., Dallas—DWELLINGS—Lee Constr. Co., 2116 N. Field St., number of 2-story brick dwellings mostly in Lake. Highlands, **$310,000.**

Tex., Fort Worth—DWELLINGS—Newark & Sargent, c/o Roy Hyde, 1300 Nashville St., 44 frame dwellings, concrete slab fdn.

▲ **Tex., Houston**—MOTEL, SHOPPING CENTER, etc.—A. R. Anderson, Westfield Rd., plans by Zimmerman & Bible, archts.-engrs., 500 Stuart St., 250-unit brick motel, **$1,350,000;** 1 and 2 story 40-45 units, steel frame, masonry shopping center, **$4,000,000;** 3-story 50-room hotel, **$650,000.** Richmond Ave. and S. Post Oak Rd. area. Walter P. Moore, 2 Pinedale St., consult. engr.

▲ **Tex., Houston**—DWELLINGS—C. O. Beeler, 4715 Calhoun St., 38 dwellings, **$312,000;** 46 dwellings, **$368,500;** 41 dwellings, **$328,000;** 48 dwellings, **$384,110;** 40 dwellings, **$320,000;** 44 dwellings, **$352,000;** 34 dwellings, **$300,000;** 50 dwellings, **$405,600** in portion of Scenic Woods Subdivision extens.

Tex., Houston—APARTMENT—B.L.M. Co., c/o J. Bryant Baker & Assocs., c/o John E. Price, Jr., Natl. Bank Commerce Bldg., 20-unit masonry apartment, 28 Sunset Blvd. **$750,000.**

Tex., Houston—STORES, etc.—Joseph L. Levin & Assocs., 1612 Bissonnet St., plans by Lucian T. Hood, Jr. and Lars Bang, 1612 Bissonnet St., 3-story stores-office, on Times Blvd. just off Kelvin, **$350,000.**

▲ **Tex., Houston**—DWELLINGS—A. Mascari Constr. Co., 2130 Chantilly St., 37 masonry dwellings, **$388,100;** 29 brick veneer dwellings, concrete slab fdn. **$352,150;** 33 brick veneer dwellings, **$365,000;** 26 masonry dwellings, **$335,500** in area north of Oak Forrest in northwest sect. of city.

▲ **Tex., Houston**—DWELLINGS—Jim Perry, 1907 Bellmeade St., 40 dwellings, **$320,000;** 35 dwellings, **$300,000;** 38 dwellings, **$335,600;** 44 dwellings, **$369,850;** 31 dwellings, **$305,000** in Scenic Woods subdivision extens. outside city limits.

▲ **Tex., Houston**—DWELLINGS—Lewis O. Tyra and Dan McCrary, 5519 Lawndale St., Section 1, 31 dwellings, **$390,000;** 18 dwellings, **$341,500;** 28 dwellings, **$348,150;** 26 dwellings, **$330,000;** 34 dwellings, **$419,800;** 24 dwellings, **$318,000;** 15 dwellings, **$325,750,** in 127-acre tract southwest of city.

▲ **Tex., Houston**—DWELLINGS—LeRoy Walker and Hank Morris, 5603 Belneath St., 33 dwellings, **$335,000;** 27 dwellings, **$315,000;** 28 dwellings, **$320,000;** 22 dwellings, **$300,000** in new Gulf Freeway Terrace addn. at Allen-Genoa Rds.

▲ **Tex., Pasadena**—DWELLINGS—James Martin Hill, Jr., Builder, Pasadena, 41 dwellings, **$338,618;** 36 dwellings, **$307,260;** 38 dwellings, **$327,000;** 32 dwellings, **$309,800;** foregoing in southern part of town; 20 brick type dwellings, **$300,000;** 22 stone, cedar shake, brick dwellings, **$331,000;** 26 brick and stone dwellings, **$370,145,** 82-acre tract.

Tex., San Antonio—SHOPPING or COMMUNITY CENTER—Monticello Village Community Center, c/o Cerf Ross Assocs., archt. & engr., 111 Auditorium Circle, First Unit, 36,000 sq. ft. large shopping or community center, **$310,000.** J. R. Marvin Shipman, 146 W. Olmos Dr. and Halsey & Royer, 524 Transit Tower, consult. engrs. CD 3/19.

▲ **Tex., San Antonio**—HOSPITAL—The Southwest Texas Conference of Methodists, c/o Rev. R. F. Curl, dist. supt., 535 Bandera Rd., hospital, **$4,000,000;** nurses and doctors home, **$750,000.**

Tex., Velasco-Brazosport—HOTEL—John B. Cassidy & Assocs., 4905 Calhoun Rd., Houston, hotel or hostelry. On San Luis Beach. **$400,000.**

Tex., Wichita Falls—CHURCH—First Christian Church, c/o Dr. Geo. Davis, 10th at Travis St., church. **$550,000.**

▲ **Wash., Alderwood Manor**—HOMES—A. Balch, 8050 35 Ave. N. E., Seattle, plans by J. Ridley, 815 Blanchard St.; P. H. Kirk, 615 Lakeview Blvd., and Grainger, Thomas & Baar, Arcade Bldg., Seattle, 500 homes, **$5,000,000;** shoppping center, **$1,000,000** at Lynnwood.

▲ **Wash., Hoquiam**—HOMES—M. Hurtwitz, Hoquiam, 50 homes in Beacon Hill Park area with sewers and streets. **$1,250,000.**

▲ **Wash., Seattle**—DORMITORIES—Seattle University, Broadway and Madison Sts. 4-story each, men's dormitory, **$1,000,000;** faculty dormitory, **$320,000.**

W. Va., Sistersville—HOUSING—Harold Kitchenloe & Assocs., Sistersville, Country Club Heights housing proj., 75-100 residences for employees of Linde Air Products Co. plant, 33-acre site, **$750,000-$1,000,000.**

▲ **Wis., Milwaukee**—HOTEL—Schroeder Hotel, 509 W. Wisconsin St., plans by Holabird, Root & Burgee, 180 N. Wabash St., Chicago, Ill., 25-story hotel addn., est. **$5,000,000-$6,000,000.**

Wis., Sheboygan—SHOPPING CENTER—Krambo Food Stores, 1212 E. Opechee St., Appleton, 10 or 12 unit shopping center, **$300,000.**

Ont., London — APARTMENTS — Herbert C. McClure Constr. Co., Richmond St., N. London, plans by Phillip Carter Johnson, 171 Dundas St., London, apartments in connection with shopping center, **$750,000.** CD 5/14.

Ont., Ottawa—OFFICE—Lurnor Syndicate, 5 Duke St., plans by J. W. Woolfson, 104 Lewis St., 2 story 80x200 ft. office, **$500,000.**

Ont., Ottawa—OFFICE—Lumor Interests Limited, 197 Spark St., 2 story, bsmnt. office bldg. 184 Queen and 211 Albert Sts. **$500,000.**

▲ **Ont. Toronto**—APARTMENT—Browside Construction Co. & By-Pass Development Ltd., c/o Herman & Herman, 26 Queen St. E., Toronto, 1,000-suite apartment project on 35-acre tract on Ont. Hy. 401 and Bathurst St., **$8,000,000.**

Ont., Toronto—HOTEL—S. M. Waller, 700 Bayview Ave., plans by Carter & Coleman, 2201 Kingston Rd., 2 story 50-room hotel on Kingston Road and Duncombe Blvd., **$350,000.**

Que., Rouyn—TELEPHONE EXCHANGE—Northern Telephone Co. Ltd., New Liskeard, automatic telephone exchange, **$600,000.**

▲ **Que., Ville Jacques Cartier**—HOUSING—Harmony Homes Ltd., c/o R. Fisher, archt., 1400 Bleury St., Montreal, 150-Bungalow housing program on new streets, **$1,300,000.**

INDUSTRIAL BUILDINGS

Ark., Little Rock—TERMINAL—Arkansas Motor Freight Lines, Inc., 711 Parker St., truck freight terminal, **$100,000.**

Conn., Elmwood—PLANT—Nelson Brothers Co., R. J. Nelson, prss., 555 Broad St., Hartford, plant south side Prescott St., **$100,000.**

▲ **Conn., Hartford**—TERMINAL—Harry M. Sloate c/o Sloate Chevrolet Co., 1 Myrtle St., 4-6 story, Mid-City Terminal bounded by New York New Haven & Hartford R.R., Myrtle St., Church and Edward Sts.—industrial and offiie bldg. proj with access from 3 levels, railroad car spotting platforms, track platforms, terminal facilities, incl. driveways, present Sloate Bldg. addn., Myrtle St. fronting Spring St. **$4,000,000-$6,000,000.**

▲ **Conn., Milford**—PLANT—Bridgeport Thermostat Div. 1225 Connecticut Ave., Bridgeport, plans by Leo F. Caproni, 1221 Chapel St., New Haven, 150,000 sq. ft. masonry, glass, steel, heating controls mfg. plant **$1,500,000.** CD 4/6.

Conn., Norwich—GARAGE—Charles Simon Inc., 394 Main St., Norwich, Conn., plans by J. E. Maguire, 289 Main St., garage corner Broadway and Willow St., **$250,000.**

Fla., Gainesville—PLANT—Employees Fidelity Fund, Inc., c/o John E. Pierson, archt., Gainesville, plant, **$600,000.** (Sperry Corp. lessee).

Fla., Miami—PLANT ADDN.—Benner Box Co., Simkins Rd. Miami, plant addn., **$200,000.** Oboler & Clarke 927 41 st., Miami Beach, consult. engrs.

Fla., Miami—WAREHOUSE—OFFICE—4th Ave. Warehouse Corp., c/o Jules P. Channing & Assocs., engrs., 3101 Biscayne Blvd., warehouse-office, **$100,000.**

Ga., Atlanta—PARKING GARAGE ADDN.—Rich's Inc., 45 Broad St., S. W., plans by Stevens & Wilkins, 157 Luckie St. N. W., Atlanta, auto parking garage addn., **$750,000.**

Ga., Cumming—PLANT—Wilson & Co., Cumming, plant, **$500,000.**

Ill., Amboy—TERMINAL—Continental Oil Co., Sterling Bldg., Houston, Tex., petroleum products terminal, **$600,000.**

Ill., Bensonville — WAREHOUSE — Paving Material & Trucking Co., c/o Rock Road Constr. Co., 4915 Rogers Ave., Chicago, Zone 26, warehouse, garage office, sewers, water lines, paving, railroad work along C. & N. W. R.R. and Pratt Ave., near here. N. Cotts, 6615 Minnehaha Ave., Lincolnwood, consult. engr.

▲ **Ill., Danville**—FACTORY—Tecumseh Products Co. Tecumseh, Mich., 60,000 sq. ft. factory, **$1,500,000.**

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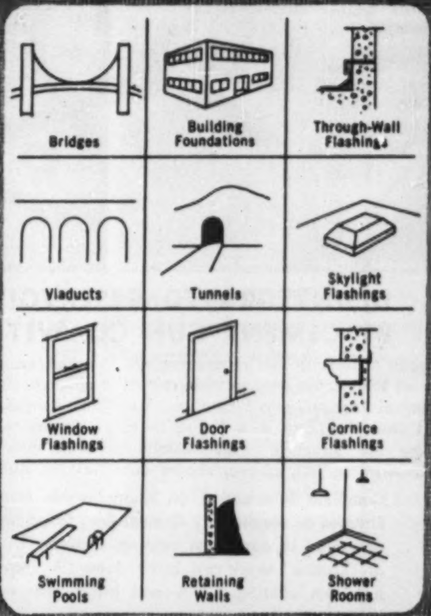

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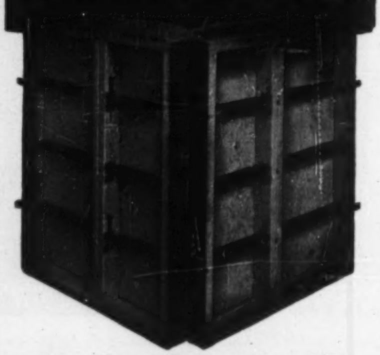

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Ind., Huntington—FACTORY—Angier Products, Inc., 120 Potter St., Cambridge, Mass., Plans by A. M. Strauss, Inc. Strauss Bldg. Fort Wayne, factory, Condit and Sabine Sts., **$150,000.** CD 8/26.

▲ **Ky., Corbin**—PITS, PLANTS, ETC.—U. S. Steel Corp., 525 William Place, Pittsburgh, Pa., 150x150 ft. each dumping pits, cleaning plant and tipple, R. R. tracks, several miles of conveyor belt, **$7,800,000.**

Me., Belfast—PLANT—Penobscot Poultry Co., Inc., 22 Cross St., plans by Eaton W. Tarbell & Assoc., 84 Harlow St., Bangor, plant, **$100,000.**

▲ **Mass., Everett**—ELECTRIC POWER GENERATING PLANT—Boston Edison Co., 30 Boylston St., Boston, electric power generating plant, Mystic Station, 125,000 kilowatts, **$5,000,000.** Jackson & Moreland, 600 Park Square Bldg., Boston, consult. engrs.

Mo., Clayton (St. Louis 24 P.O.)—EQUIPMENT—Lawrence J. Meisel Co., 444 S. Brentwood Blvd., Clayton, Zone 5, brick, rein.-con., glass 16,000 sq. ft. floor space for repairs and service lawn equip., display room, offices at 281x150 ft. tract on Clayton Rd. east of Daniel Boone Parkway overpass, **$100,000.**

N. Y., New York—GARAGE—Harry & Irving Cohen, 470 Broadway, Zone 13, plans by Henry George Greene, 855 6th Ave., Zone 1, 6-story garage, 106-110 Grand St. **$250,000.**

▲ **N. Y., Springfield Gardens**—WAREHOUSE, etc.—Western Electric Co., 195 Broadway, New York, Zone 7, 2 story, distribution warehouse-repair center, 10-acre tract, Springfield and Merrick Blvds. and Montauk St. **$4,000,000.**

▲ **Tenn., Chattanooga**—MILL—McMillen Feed Mills, 300 Ft. Wayne Bank, Fort Wayne, Ind., mill. Approx. **$2,000,000.**

Tenn., Knoxville—PLANT-WAREHOUSE—Atlas Gas Co., Middle Brook Pike, gas plant-warehouse, **$150,000.**

Tex., Harlingen—TERMINAL FACILITIES—Magnolia Petroleum Co., N. Esperson Bldg., Houston, terminal facilities. 5-acre tract at Port Harlingen on Arroyo Colorado, **$375,000.**

▲ **Tex., Houston**—PLANT, etc.—Liquid Carbonic Corp., 2110 Center St., carbon dioxide unit, **$2,000,000;** warehousing, **$200,000,** on Ship Channel.

Tex., Houston—MILL—Hou-Tex Peanut Co., c/o A. W. Freeman, 1105 McCall St., reconstr. peanut mill. **$100,000.**

Tex., Wichita Falls—PLANT—Times Publishing Co., c/o Rhea Howard, Wichita Falls, newspaper plant (for Wichita Daily Times and Wichita Falls Record-News Newspapers), 2-acre site. **$500,000.**

▲ **Utah, Mount Pleasant** — CHEMICAL PLANT — Utah Chemical Co., N. G. Morgan, Jr., pres., Wasatch Oil Bldg., Salt Lake City, chemical plant to mfg. nitric acid, ammonium nitrate, anhydrous ammonia per day, San Pete Valley, **$18,825,000.**

▲ **Wash., Tumwater**—BREWERY ADDN.—Olympia—Brewing Co. Tumwater, plans by Wohleb & Wohleb, & Assocs. Chambers Bldg., Olympia, 2 story 44x280- and 120x480-ft. brewery addns., **$1,200,000.**

Wis., Belgium—GRAIN ELEVATOR—Jerome Schwabendender, Belgium, grain elevator, **$100,000.**

Wis., Madison—TERMINAL—Continental Oil Co., Sterling Bldg., Houston, Tex., petroleum products terminal, **$600,000.**

Alta, Etzikom—PLANT—New British Dominion Oil Ltd., 302 General Trust Bldg., Calgary, ammonia plant, **$500,000.**

▲ **B. C., Port Moody**—PLANT—Canadian Western Pipe Mills Ltd., 1070 Hornby St., Vancouver, pipe and tubing plant, **$3,000,000.** Bohna & Miller Co. 1104 Hornby St., Vancouver, engr. CD 1/27, under Vancouver, B. C. (Location changed).

UNCLASSIFIED

Alabama—TELEPHONE LINES—Leeds Telephone Co., Leeds, telephone lines, St. Claire Co., **$175,000,** J. B. McCrary Co., Atlanta Federal Savings Bldg., Atlanta, Ga., consult. engr.

Alabama—TELEPHONE LINES—Monroeville Telephone Co., Monroeville, telephone lines, Monroe Co., **$200,000,** J. B. McCrary Co., Atlanta Federal Savings Bldg., Atlanta, Ga., consult. engrs.

Ariz., Phoenix—PARK, etc.—Gilbert E. Olson, 4012 N. Central Ave., 34-acre park and recreation area, 2 olympic pools, concessions, rides, etc. **$500,000.**

† **Calif., Norwalk**—TANK FARM—U. S. Eng., 751 S. Figueroa St., Los Angeles, floating roof on gas storage and water tanks, Air Force Tank Farm, **$800,000.** Marton A. Nishkiam & Co., 3754 Long Beach Blvd., Long Beach, consult. engrs. CD 5/22/51.

▲ **Florida**—RURAL DISTRIBUTION LINES—Clay County Electric Co-operative, Keystone Heights, rural distr. lines, Clay Co., **$2,000,000,** E. P. McLean, Moultrie, Ga., consult. engr. CD 7/13/50.

Georgia—TELEPHONE LINES—Coastal Utilities Inc., Hinesville, telephone lines, Liberty Co. **$225,000.** J. B. McCrary Co., Atlanta Federal Savings Bldg., Atlanta, consult. engr.

Georgia—RURAL DISTRIBUTION LINES—Douglas County Electric Membership Co-operative, Douglasville, rural distr. lines, Douglas Co., **$300,000,** J. B. McCrary Co., Atlanta Federal Savings Bldg., Atlanta, consult. engr. CD 3/17.

Georgia—TELEPHONE LINES—L & B Telephone Co., Chipley, telephone lines in Meriwether, Troup and Harris Counties, **$100,000.** Southern Engr. Co., 1000 Crescent Ave. N. E., Atlanta, Ga.; consult. engr.

Georgia — RURAL DISTRIBUTION LINES — Ocmulgee Electric Membership Corp., Eastman, 45 mi. rural distr. line and sys. imprvs., Dodge Co. **$385,000.** . .

Georgia—RURAL DISTRIBUTION LINES—Three Notch Electric Membership Corp., Donalsonville, 104 mi. rural dist. lines, substation facilities, sys. imprvs., Seminole Co., **$610,000.**

Georgia—TELEPHONE LINES—Trenton Telephone Co., Trenton, telephone lines, Dade Co., **$175,000**, J. B. McCrary Co., Atlanta Federal Savings Bldg., Atlanta, consult. engr.

▲ **Ga., Thomasville**—NATURAL GAS PLANT—City, natural gas plant, distr. sys., **$1,000,000**, J. W. Goodwin Eng. Co., 2111 Seventh Ave. S., Birmingham, Ala., consult. engr. CD 4/16/53.

▲ **Mo., St. Louis**—FIRE ALARM SYSTEM—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 and Market Sts., Zone 6, fire alarm sys., incl. central alarm bldg., Kingshighway and Clayton Ave. **$2,300,000.** CD 8/16/44.

N. J., Paterson—PARKING LOTS—City, City Hall, parking lot, Ward St. between Clark and Prince Sts. **$500,000;** parking lot, Hamilton Ave. between Bridge and Washington Sts. **$135,000.**

▲ **O., Toledo**—PARKS, etc—City Park Commissioner, Safety Bldg.,

Ashley Park imprvs., land fill and grading to double capacity, junior pool, bathhouse and other imprvs., Knower St., near Sumner St., **$125,000.**

Bayview Park—convert area north of Naval Armory to picnic area with new land created by means of retaining wall to hold soil dredged from harbor, **$530,500.**

Bowman Park—imprv., paved drives, parking areas, floodlight play areas, two comfort stations, field house, **$1,107,100.**

Collins Park—enclose ditch that now crosses six fairways of golf course, erect bldg. for golf course, **$140,000.**

Colony Park—landscape, fence, paving, install baseball diamonds, adult swimming pool and bathhouse, **$306,950.**

Copland Park—landscape, fence, pave, ball diamonds, junior pool and bathhouse, **$270,875.**

Highland Park Imprvs.—imprv. park facilities and modernize swimming pool, **$195,500.**

Navarre Park—develop areas now not used, grade and clean land, build comfort station, **$187,500.**

Oakland Park—develop unimproved sects., erect fencing, surface parking areas, **$84,680.**

Point Place Community Center—build junior pool and community bldg., with fencing, **$216,750.**

Ravine Park—enlarge area, fill and grade, pave drives, erect adult pool and shelter house, **$421,580.**

Riverside Park—build foot bridge over Pennsylvania R. R. tracks, erect fencing along tracks, install ball fields, **$71,400.**

Scott Park—develop unimproved area, landscape, blacktop drives and parking areas, install tennis courses, build field house, **$846,750.**

Walbridge Park—build play field north of Anthony Wayne Trail, build drives and parking areas, install masonry wall at river banks to check erosion. **$134,000.** CD 8/5/52.

South Carolina—TELEPHONE LINES—Palmetto Rural Telephone Co-op., Walterboro, telephone lines, Colleton Co., **$500,000.** McCall-Thomas Engr. Co., Orangeburg, consult. engr.

South Carolina—TELEPHONE LINES—Piedmont Rural Telephone Co-op, Laurens, telephone lines, Laurens, Greenwood, Newberry, Abbeville and Anderson Counties, **$850,000.** Southern Engr. Co., 1000 Crescent Ave., N. E., Atlanta, Ga., consult engr.

Tennessee—TELEPHONE SYS. IMPRVS.—DeKalb Telephone Co-op., Alexandria, telephone sys. imprvs., Alexandria, De Kalb Co. **$100,000.** Cottrell & House, P.O. Box 6007, Nashville, consult. engrs.

Tex., New Caney—PLAYGROUNDS, etc.—Union Baptist Assn., 2420 Milam St., Houston, playgrounds and recreation center, 110-acre site, **$100,000.**

Tex., Orange—ENLARGE DOCK FACILITIES—City, c/o Orange Dock Bd., John W. Simmons, Orange, enlarging dock facilities, **$375,000.** CD 4/20/50.

Tex., Velasco-Brazosport—BATHHOUSE, etc.—John B. Cassidy & Assocs., 4905 Calhoun Rd., Houston, bathhouse and facilities, **$100,000;** boating and docking facilities, **$85,000;** area outside lighting sys., **$75,000,** on San Luis Beach.

† **Vt., North Concord**—FACILITIES—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., design of facilities, vicinity of here, DA-19-016-ENG-3129. Webster-Martin, Inc., Municipal Airport, South Burlington, consult. engr.

Wash., Seattle—PARK IMPRVS.—Park Board, 100 Dexter Ave., imprvs. to Woodland Park Zoo, **$500,000;** parking, picnic area and boat ramps at Golden Gardens Bech, **$78,000;** roadway and picnic area in Seward Park **$110,000;** wading pool and imprvts. at Volunteer Park, **$120,000;** surf. bicycle trail, addnl. parking, new boathouse, model yacht basin and shore "control" facilities for wildlife at Green Lake, **$81,500;** shops at Interbay Playground, **$150,000.** W. C. Hall, ch. engr. CD 5/29/52.

† **Alaska, Galena** — COMMUNICATIONS FACILITIES — U. S. Eng., **Anchorage**, communications facilities. **$100,000.**

† **Alaska; Takotna** — COMMUNICATIONS FACILITIES— U. S. Eng., **Anchorage**, communications facilities. **$750,000.**

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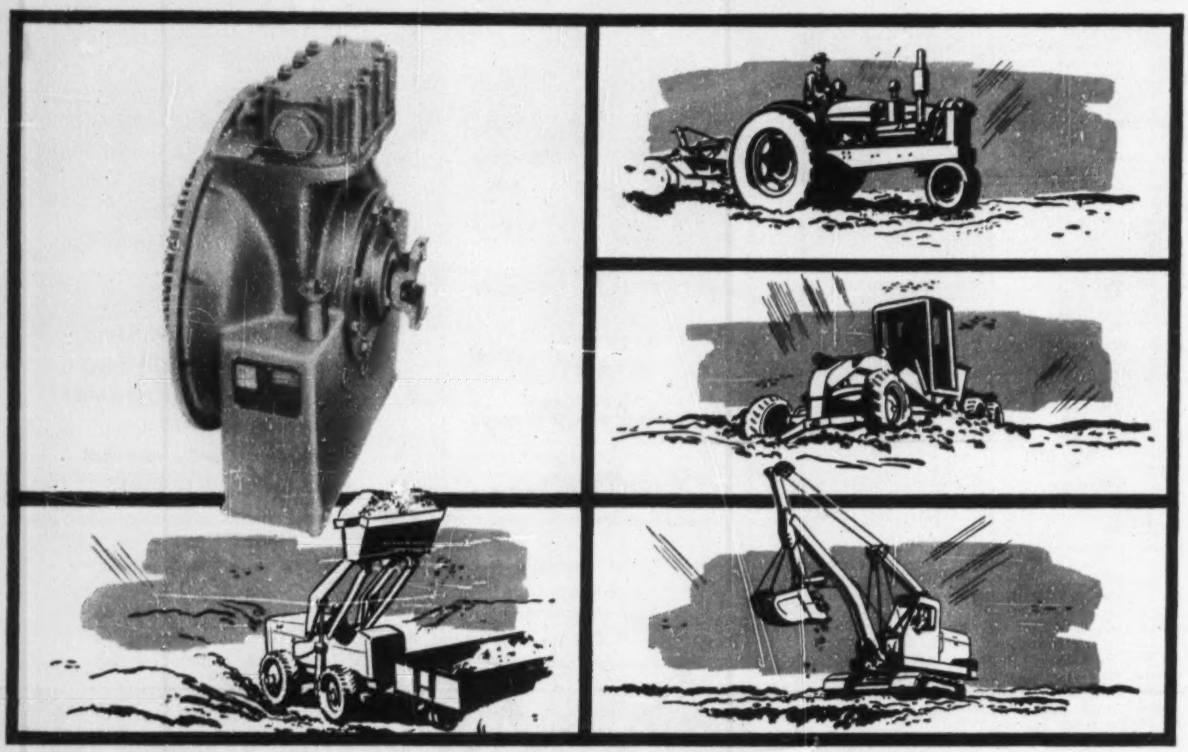

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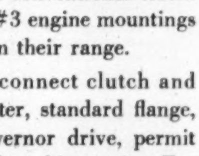

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Walsh Brothers**, 150 Hampshire St., Cambridge, Mass. CA est. **$1,250,000**. CLASSROOM Bldg. Riverway, BOSTON, MASS. Emmanuel College, 400 Fenway St., Boston, Mass. CD 4/2.

▲ **Thomas O'Connor & Co., Inc.**, 230 Main St., Cambridge, Mass. CA est. **$1,500,000**. central high SCHOOL, 273 Union Ave., FRAMINGHAM, MASS. R. C. Archdiocese of Boston, Chancery Office, 1 Lake St., Brighton, Mass. CD 1/25.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Colmar Constr. Co.**, 364 Gold St., Brooklyn, N. Y. CA, **$1,270,000**. New York Ventilating Bldg. for Third Tube of Lincoln Tunnel, Contr. LT-160.025. NEW YORK. The Port of New York Auth., 111 8th Ave., New York 11, N. Y. Bids June 8. CD 6/10, under LB.

▲ **James Mitchell, Inc.**, 75 Montgomery St., Jersey City, N. J., CA **$1,563,000**, admin. bldg. for Lincoln Tunnel adjacent to Lincoln Tunnel Plaza in Weehawken, N. J., Contr. LT-160.011. NEW YORK-NEW JERSEY The Port of New York Auth., 111 8th Ave., New York 11, N. Y. Bids June 8. CD 6/11 under LB.

▲ **Rust Engrg. Co.**, 575 Ave. Pittsburgh, Pa., CA **$3,778,706**. est. $4,953,772, sewage disposal sys. addns., alterations, foot of Wallace St., ERIE, PA. Erie Sewer Auth., City Hall, Erie, Pa. Bids Apr. 20. CD 4/30 under LB.

▲ **McCloskey & Co.**, 1620 W. Thompson St., Phila., Pa. LB, **$2,860,161**. Bid 2176, sedimentation basins, Torresdale Filter Plant, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids June 3. CD 5/19.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Cauldwell-Wingate Co.**, 101 Park Ave., New York 17, N. Y., CA Approx. **$3,000,000**. 15-story OFFICE, 340 Broadway, between Worth St. and Catherine Lane, NEW YORK, N. Y. Broadway Realty Inc., c/o contractor. CD 3/24.

▲ **Jefferson Park Estates**, c/o Stanley Klein, archt.. 89-31, 161 St., Jamaica, N. Y. Owner Builds. **$2,700,000**, 150 HOUSES, Jerusalem and Washington Aves. WANTAGH, N. Y.

▲ **Royal Estates Homes**, c/o Leonard G. Feinen, archt., 320 Lincoln Ave., Hasbrouck Heights, N. J. Owner Builds. **$2,500,000**. 150 HOUSES, Summerhill Rd. and Rues Lane, EAST BRUNSWICK, N. J.

▲ **David Warren Constr. Co.**, 370 Montgomery Ave., Merion, Pa., Separate Contracts. **$4,000,000**. RESIDENTIAL development, Durard Rd., PHILA., PA. Jack Swerman, 405 Market St., Chester, Pa., archt.

▲† **J. D. Hedin Constr. Co.**, 2900 Newton St. N. E., Wash., D. C. CA **$4,662,000**. LABORATORY M-V 2, 3, 4 and 5, CAMP DETRICK, MD. U. S. Eng., First and Douglas Sts. N. W., Wash., D. C. Bids June 10, awarded June 15. CD 6/14 under LB.

SOUTH

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Ray M. Lee Co.**, 1004 Edgewood Ave. N.E., Atlanta, Ga. CA, **$2,779,707**, hospital, Mac Dill Air Force Base Inv. 54-52, TAMPA, FLA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids May 18. CD 5/27, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Southeastern Constr. Co.**, 301 W. 2 St., Charlotte, N. C., CA **$2,000,000**. PLANT, BESSEMER CITY, N. C. Lithium Corp. of America, Inc., Rand Tower, Minneapolis, Minn. Norman C. Nagle, c/o owner, archt. CD 3/16.

▲ **Macdonald Engrg. Co.**, 188 W. Randolph St., Chicago 1, Ill., CA **$2,000,000**. Design and Construct, 4,000 ton bulk FEED PLANT and 3,250,000 bu. elevator, CHATTANOOGA, TENN. Central Soya Co., Inc., 300 Fort Wayne Bank, Fort Wayne, Ind. CD 5/20.

MIDDLE WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Westinghouse Electric Corp.**, 5757 Trumbull St., Detroit 8, Mich. LB **$1,895,700**. 40,000-50,000 KW reheat hydrogen-cooled turbine generator Mistersky power station, Public Lighting Comn., DETROIT, MICH. City, Dpt. Purch. & Supplies, 735 Randolph St., Detroit, Mich. Bids June 8. CD 6/3.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Hughes-Foulkrod Co.**, Schaff Bldg., Phila., Pa., CA, **$1,500,000**, 1 story block, corrugated siding, 440x 480 ft., WAREHOUSE, ALTON, ILL. Owens-Illinois Glass Co. Box 1035, Toledo, O. Walter V. Wuellner, Waterville, O., archt.

▲ **Tharnstron & Co.**, 7401 St. Louis Ave., Skokie, Ill. CA piling;
Taheny Bros., 6292 Hiawatha St., Chicago, Ill. CA masonry. 19 story APARTMENT, 72 units. Total est. **$2,000,000**, CHICAGO, ILL. 2970 Lake Shore Drive Apartments, c/o Loewenberg & Loewenberg, archts., 111 W. Monroe St., Chicago 3, Ill. CD 7/13/53.

▲ **Dahlem Constr. Co.**, Baxter Ave., Louisville 4, Ky. CA est. **$3,000,000**. SHOPPING CENTER (Youngstown) incl. 17 stores, L-shaped, parking space, JEFFERSONVILLE, IND. Geo. A. Young (realtor), 152 E. High St., Lexington, Ky. Awarded June 11.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Okla., Muskogee**—BA 7/26—City, City Hall, 6 mi. 48-in. c.i water flow line, $2,000,000. Hudgins, Thompson & Ball, 1100 W. Main St., Oklahoma City, engrs. CD 1/25.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **IOWA**—State Hy. Comn., Ames,
Booth & Olson Inc., 529 Insurance Exchange Bldg., Sioux City, CA **$617,722**, paving 6.974 mi. F-218 (1), Clay Co., CA, **$328,259**, paving 6.088 mi. Special F-356 (11), Monona Co., CA, **$822,557** paving 13.484, F-2 (10), Woodbury Co. Bids June 1. Grand total $1,768,537. CD 5/12, under LB.

▲ **Midwestern Constructors, Inc.**, 105 N. Boulder St., Tulsa, Okla. CA est. **$5,350,000**. oil products pipeline from Billings to Glendive 225 mi., Yellowstone, Treasure, Rosebud, Custer, Prairie and Dawson Counties, MONTANA. Oil Basin Pipeline Co., c/o contractor. Pace Assoc., 53 W. Jackson St., Chicago, Ill., engrs.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Fluor Corp.**, Atlantic and Thomas Blvds., Los Angeles 22, Calif. CA 25,000 bbls. per day REFINERY at Pine Bend incl. crude distillation and tar separator unit, a thermofor catalytic cracking unit hydrodesulfurizer and ultra-forming unit, catalytic polymerization unit, gas recovery sys., delayed cooking unit and off-site facilities;
Graver Tank & Mfg. Co., Inc., 6300 Tod Ave., East Chicago, Ind. and **Pittsburgh-Des Moines Steel Co.**, 3436 Neville Island, Pittsburgh, Pa. CA tanks for crude and refined products. Total est. **$20,000,000**. ST. PAUL, MINN. Great Northern Oil Co., First National Bank Bldg., St. Paul, Minn. Purvin & Gertz, Reserve Loan Life Bldg., Dallas, Tex., consult. engrs. for refinery Lummus Co., 385 Madison Ave., New York, N. Y., consult. engrs. on processing units. CD 3/17/54.

▲ **Martin K. Eby Constr. Co.**, 610 N. Main St., Wichita, Kan. CA **$3,198,100**. Lot II, machine foundations, MATERIALS BLDG., WICHITA, KAN. Boeing Airplane Co., Plant No. II, Personnel Bldg., Wichita, Kan. Bids June 8. CD 5/26.

▲† **C. H. Leavell & Co.**, 1900 Wyoming St., El Paso, Tex., and **Dan Ponder, Inc.**, Box 344, El Paso, Tex., LB **$3,745,315**. est. $450,000-$875,000, 9 EM BARRACKS, approx. 45,000 sq. ft. rein.-con. and masonry type, 40,000 sq. yds. asph. paving, etc., Fort Bliss, Serial No. Eng 29-005-54-106. EL PASO, TEX. U. S. Eng., Box 1538, Albuquerque, N. M. Bids June 7. Davis & Foster, 1002 Mills Bldg., El Paso, Tex., archts.-engrs. Bids May 28. CD 5/12.

FAR WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **United Concrete Pipe Corp.**, Bonita and Stewart Aves., Baldwin Park, Calif., LB **$3,896,146**, furnishing labor and materials for earthwork, concrete pipe lines, and structures incl. bifurcation structure, Station 8 plus 36.82 to Station 935 plus 05, Davis Aqueduct, Weber Basin Proj. Spec. DC-4171. UTAH. Bureau Reclamation(Dpt. Interior, Ogden, Utah. Bids June 15. CD 5/10.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,
McCammon-Wunderlich & C. K. Moseman, Box 539, Palo Alto, Calif., CA **$2,251,559**, grading, surf. 14.4 mi. and six rein.-con. bridges between Garnet and Thousand Palms, Riverside Co. Bids May 20, awarded June 7. CD 6/3.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Rothschild, Raffin & Weirick**, 274 Brannan St., San Francisco, Calif., CA **$3,639,400**. Hillsdale SCHOOL, SAN MATEO, CALIF. San Mateo Union High School Dist., Bellevue Ave. and Delaware St., San Mateo, Calif. Bids May 26. CD 6/10, under LB.

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Victoria, Texas
Contractor: Mitchel Darby

PRE-DRAINAGE SOLVES JACKING PROBLEM

SOIL COMPOSITION of the above embankment (see photo) was as follows: first 18 ft, grey clay; below this, a 5-ft layer of coarse sand and large gravel flooded with ground water. Through this water-bearing section, contractor must jack an outfall line of 48-in. diameter—jack this big pipe a distance of 60 ft to the adjacent river.

• Old-timers can recall what dismay such water-fighting would once have caused. Today, with modern wellpoint methods, Griffin engineers found a quick, economical solution. Using 2 parallel (but unconnected) header lines — one on either side of the embankment, in a "railroad-track" effect — they successfully lowered water to the required depth. Note separate wellpoint system controlling ground water in jacking pit.

GRIFFIN
WELLPOINT CORP.
881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.
In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax

UNIT PRICES

Bids close, but items vary on Pa. sewer addition

To triple the rated capacity of their sewage treatment plant from its present 1.2 mgd to 3.6 mgd the Townships of Haverford, Radnor, and Marple in Delaware County, Pa. jointly awarded a $770,273 contract to Thompson-Starrett Company, Inc. of New York. The winning low bid was only 0.3% under second bid and 5% lower than fifth, high bid. William Raisch, Garden City, N. Y., is consulting engineer.

Principal items of new construction include a screen, flume meter, grit chamber, two primary settling tanks, two high-rate filters, two final settling tanks, a floating cover digestion tank, a gas holder, a glass covered sludge drying bed, two new sewage pumps, recirculation pumps and chamber, sludge pumps and chamber, metering apparatus, piping, and roadways.

Analysis of the two low bids reveals a surprising disparity in individual items considering the mere $2,400 between them. The winning contractor was higher than second bidder on 60 of 109 items, the same on nine, and lower on 44. He bid 22% and $51,000 under second bidder on three classes of concrete. Highest percentage difference between the two occurred when second bidder went 580% above first on "paths and steps."

Minimum wage rates in the Philadelphia area include: $3.20 per hour for carpenters, $1.95 to $2.25 per hour for common labor.

The job must be completed within 450 calendar days. Overtime penalty is $50 per day.

Electrical work went to John R. Walker of Chalfont, Pa., for $22,500, the lowest of three bids offered on that phase of the project.

Bidders include:

Bids: 5-6-54		
1C	Thompson-Starrett Co., Inc., New York 22, N. Y.	$770,273
2	Baylor Const. Corp., New York, N. Y.	772,673
5	General Asphalt Pav. Co., Philadelphia, Pa.	808,531

Bids: 5-6-54 Item	Unit	Quantity	Unit Prices 1 C	 2
Earth exc, general	cy	11,000	$3.00	$3.50
trench	cy	3,100	3.10	4.00
Compacted fill	cy	7,000	0.97	2.00
Load tests	ea	2	500.00	300.00
Concrete class "A"	cy	3,300	55.00	70.00
"B"	cy	60	30.00	45.00
"C"	cy	75	23.00	40.00
Reinforcing steel	lb	240,000	0.125	0.12
Waterproofing	sf	6,200	0.12	0.10
Dampproofing	sf	8,600	0.12	0.10
Grit bldg superstruct	ls	—	15,900	15,000
Tile flooring	sf	525	1.25	1.00
Composition roofing	ls	—	4,360	3,000
Rem exist stone walls	cy	25	5.00	15.00
New stone walls	cf	1,100	3.00	4.00
High-rate filter bots	ea	2	13,200	10,000
High-rate filter stone	cy	2,575	5.00	5.00
Sludge bed media & undrdrains	ls	—	5,460	5,500
Glass sl bed cover	ls	—	41,900	32,000
Misc aluminum	lb	7,600	1.50	1.50
Aluminum gratings	sf	785	5.75	4.00
Misc iron & steel	lb	20,500	0.25	0.30
Misc cast iron	lb	7,000	0.25	0.20
Misc galv iron & steel	lb	2,000	0.35	0.50
Steel rails	lb	12,250	0.25	0.10
Pipe railings	lf	650	6.00	4.00
New chain link fencing	lf	1,000	3.28	4.50
Relocat exist WI fence	lf	573	2.50	4.00
Wood baffles & stops	ls	—	1,035	400.00
New rdways & restoring	sy	2,000	2.75	3.00
Curbing	lf	1,400	4.00	1.00
Paths & steps	ls	—	3,400	500.00
Dry wall at digest tnk	cy	60	28.50	20.00
Top soil, seed & sod	ls	—	9,500	2,000
Misc work	ls	—	2,000	300.00
RCP, 36" storm drain	lf	420	15.00	10.00
30" influent conn	lf	135	13.00	8.00
Vit tile, 20" eff line	lf	108	8.00	6.00
8" drain line	lf	150	2.00	1.00
6" drain line	lf	340	1.85	1.20
ACP, 24"	lf	85	12.00	15.00
20"	lf	475	11.00	10.00
18"	lf	200	10.00	10.00
16"	lf	725	9.00	8.00
Std CI bell & spig pipe	ton	52	362.00	400.00
Std CI B&S fittings	ton	25	540.00	600.00
Spec B&S CIP & fitting	ton	6.5	950.00	1,000
Std CI flanged pipe	ton	14	460.00	600.00
Std CI flanged fittings	ton	6	640.00	700.00
Spec flgd CIP & fitngs	ton	4	800.00	800.00
Gate valve, ext stem:				
6" B&S	ea	4	160.00	200.00
6" B&B	ea	1	155.00	200.00
16" B&B	ea	2	615.00	700.00
20" B&B	ea	1	1,140	1,500
20" B&B	ea	1	1,150	1,500
Gate valve, ins screw:				
4" flanged	ea	3	60.00	75.00
6"	ea	29	93.00	100.00
10"	ea	2	205.00	300.00
12"	ea	1	240.00	300.00
14"	ea	4	325.00	400.00
16"	ea	1	450.00	500.00
20"	ea	2	785.00	1,000
24"	ea	1	1,035	1,500
Gate valve, ext stem, 6" flgd rising screw	ea	2	285.00	250.00
Gate valve, ext stem, flgd inside screw:				
6"	ea	2	240.00	200.00
6"	ea	4	155.00	150.00
10"	ea	2	490.00	450.00
Gt vlv, box, 10" fl IS	ea	1	285.00	300.00
Flap gate, 6"	ea	1	100.00	75.00
16" w chn & hk	ea	4	290.00	250.00
20" w chn & hk	ea	2	420.00	450.00
Mud valve, 6"	ea	11	100.00	100.00
Flgd check valve, 10"	ea	2	230.00	200.00
12"	ea	1	320.00	300.00
Sluice gate w ext stem:				
6"	ea	2	280.00	250.00
6"	ea	2	415.00	400.00
16"	ea	2	545.00	500.00
30"	ea	1	1,250	1,200
8" telsc vlv. flr stnd	ea	4	465.00	400.00
Water & drain piping	ls	—	3,225	9,000
Manually clnd bar scrn	ls	—	300.00	500.00
Grit collector mechnsm	ls	—	5,000	3,000
Primry tnk sludg clctr	ls	—	29,300	23,000
Scum troughs	ls	—	3,160	2,500
Final tnk sl clctrs	ls	—	14,400	12,000
Float cover & accessrs	ls	—	35,200	30,000
Same plus gas recirc*	ls	—	47,200	34,000
Roof for floatng cover	ls	—	7,000	4,000
Rotary distrib, iron	ea	2	8,000	10,000
aluminum*	ea	2	12,700	11,000
Gas storage tank	ls	—	22,700	17,500
Parshall flume	ls	—	2,800	2,500
Venturi mtrs & cntrol	ls	—	16,000	16,000
Reloc exist 10" Venturi meter	ls	—	1,200	600
Rem 2 exist pump & pipe	ls	—	1,500	1,500
Sew pump, 2,000 gpm	ls	—	3,970	4,000
2,400 gpm	ls	—	4,280	3,500
Sludge pumps:				
constant speed	ls	—	1,970	2,000
variable speed	ls	—	2,528	2,000
centrifugal	ls	—	1,300	1,000
Recirc pump, 4,200 gpm	ea	4	2,750	2,500
Level indicators	ls	—	2,020	1,500
Sludg htr & recirc pmp	ls	—	8,200	7,000
Gas piping & devices	ls	—	9,400	6,000
Gas engine conversion	ls	—	10,200	5,600
Dried sludge conveyor	ls	—	9,725	8,000
Sludge grinder	ls	—	1,280	600
Monorail hoist	ls	—	600	700
Ventil fans & ducts	ls	—	2,630	2,000

---

* This alternate not adopted.

• The sheaves of this power shovel get a shot of clean new lubricant. The operator is using Alemite Hand Gun 1056-SE. This lever type gun has plenty of power to push out old grease and dirt—has large capacity to service many bearings without refilling.

• Here the Alemite Hand Gun is refilled quickly with Alemite Loader Pump 7181-L. Just eight strokes of the pump fills the gun with no mess, no waste, no troublesome air pockets. Lubricant is protected at all times from dust, dirt and grit that can ruin bearings.

• Turntable bearings are serviced with Alemite Red-A Bucket Pump 7137-A. This pump has large capacity for bearings that require high volume. At the top of the pump is Alemite Dyn-O-Mite Gun 7132 that supplies up to 10,000 pounds pressure with easy one-hand squeeze.

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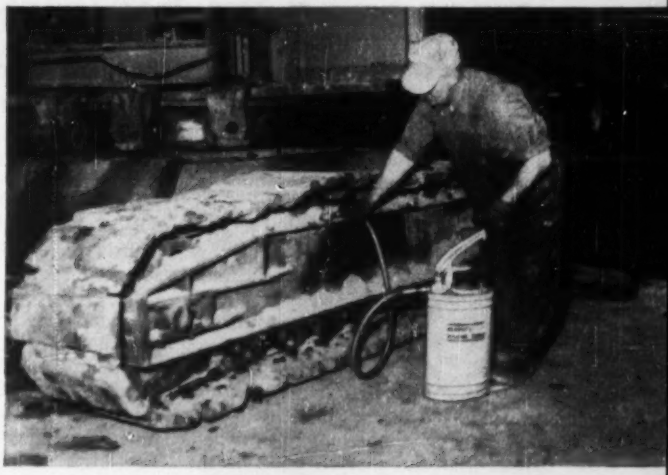
• Here an Alemite Tractor Bucket Pump 6521-B gives the positive lubrication protection demanded by bearings of track support rollers against dirt and grit. Engineered to provide both high pressure and volume delivery, this pump has become the standard of the industry.



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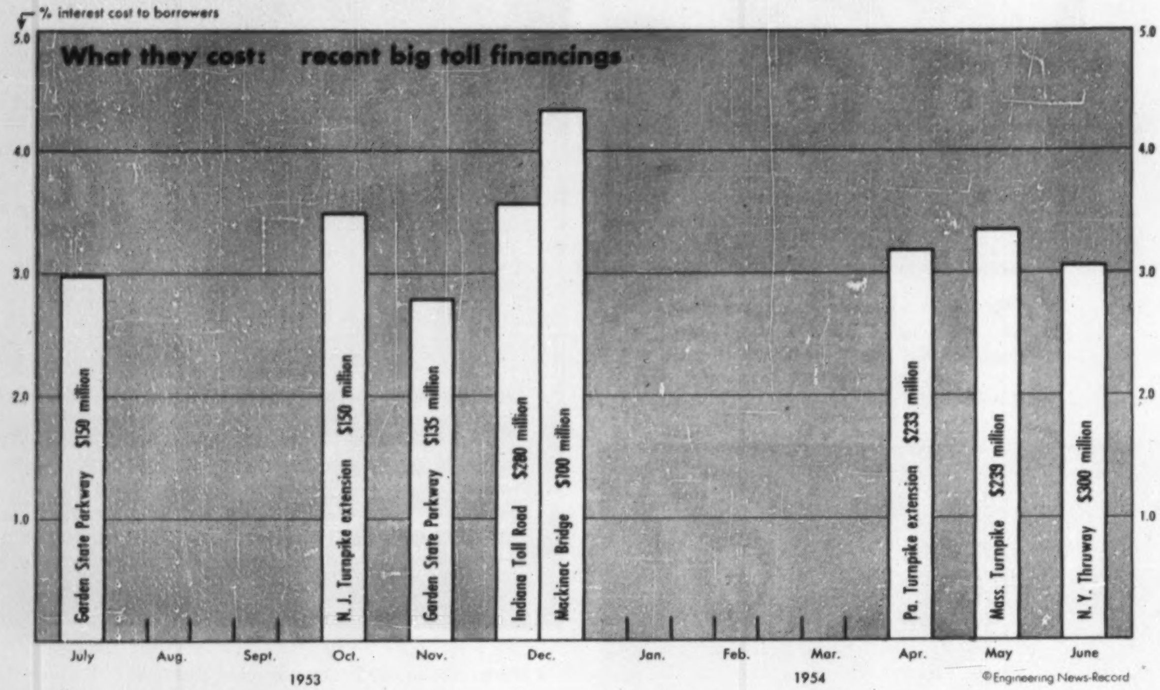

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$300-million Thruway issue is snapped up by investors

That's one more proof that there is plenty of money to finance a high level of construction for many months

If any construction men have been worried about where the money to finance construction is coming from, they received some substantial reassurance last week. The $300-million issue of revenue bonds which the New York State Thruway Authority offered was sold to underwriters at an interest cost of 3.07%. Then the underwriters resold all the bonds to investors within a few hours after they had made their successful bid to the authority.

So eager were investors to buy these bonds that the market price of the issue has risen to 101⅞% of par before the first day was over. This was more than a point above the underwriter's issue price of 100¾. Probably the biggest individual buyer was a group of New York State employee pension funds, which asked for $75 million in bonds and were only able to get $50 million from the underwriters.

One of the big reasons for the attraction of this issue, of course, was the fact that since it is issued by a New York State public agency, it is exempt from New York State income tax. That makes it very attractive to all financial institutions in New York which pay state income tax. And of course, there are plenty of such customers.

• Second biggest—It's also worth noting that this was the second largest turnpike issue in history, surpassed only by the $326-million offering in mid-1952 to finance the Ohio Turnpike. The Thruway issue was $20 million larger than the issue which previously ranked No. 2—the $280 million of bonds sold last December by the Indiana Toll Road Commission.

The chart (above) shows some of the big toll issues of the past year—their size and the interest cost to the public agencies which sold them. However, it would be misleading to compare these issues with each other. The terms on which they were sold vary widely. The Garden State Parkway bonds, for instance, are guaranteed by the state and so were sold at a lower interest cost. And market conditions have been more favorable this spring to revenue bond issues than was the case last fall.

• "Out the window"—At any rate, the speed with which the Thruway bonds went "out the window," as Wall Street calls a fast-moving issue, shows once more that construction money is not going to be hard to find this year. It is true that both the municipal bond market and the corporate bond market have been somewhat soggy in recent weeks. But now the atmosphere is likely to change. Only a week before the Thruway bonds were sold, the Aluminum Co. of America offered $100 million of debentures, an unusually large morsel for the corporate bond market. But investors also snapped this up.

With these big issues out of the way, interest rates are likely to ease off somewhat. Moody's Investors Service, one of the leading investment counselors, advised its investors last week not to delay in investing their funds. In other words, it suggested that they buy bonds now before bond prices go higher. The higher the price of a bond, the lower the yield the investor gets from it.

• Slowdown – After the additional $119 million of housing authority bonds scheduled to be sold this week, are taken up, the municipal bond market will slow down considerably. Sometime in July or August, the Florida Turnpike Authority may sell $89 million of bonds, though this is by no means definite. In August, the Virginia Tunnel Revenue Authority may ask for $100 million for its tunnel under Hampton Roads and bridge over the Rappahannock River. Perhaps there also may be an issue of about $50 million to finance the proposed Dallas-Ft. Worth Turnpike.

In the corporate bond market, after Panhandle Eastern Pipe Line Co. sells its $35-million issue for construction this week and Columbia Gas System sells $40 million for construction next week, the market calendar will be quite bare. There are several pretty sizable public utility issues which might come to market before long, but they are mostly to refund existing issues, not for financing new work.

• **Hungry**—Because of the expected lack of bond issues this summer, investors are likely to be eager for bond issues that do come along. Naturally, this also is a good omen for the mortgage market, since many of the same investors who buy municipal bonds and corporate bonds are also heavy investors in mortgages. If not enough bonds are available, they will switch into mortgages.

For months there have been reports around the country that many investors are willing to take government-guaranteed VA mortgages for a 30-year term with no down payment. Buying mortgages without requiring the home owner to put up some equity money of his own usually is not considered to be good lending practice. The fact that some lenders are doing it shows that they are hungry for mortgages.

Another reason why construction money should continue to be easier to borrow for awhile: the continuing downtrend of business loans made by U. S. commercial banks. That means banks will have more money to invest in bonds and mortgages.

However, there is one factor that could work to tighten construction money. During the next few months, the Treasury will be back in the bond market to borrow about $10 billion of new money to finance the budget deficit. If the Administration is convinced that business has turned the corner, undoubtedly the Treasury will borrow some of this on a long-term basis, in competition with state and local governments, corporations, and home buyers.

Cash reserves for highway construction going up despite record volume of work

A growing backlog of cash on hand makes the outlook rosy for highway construction in 1955. Cash receipts this year are running well ahead of expenditures for the second year in a row, according to estimates of the Bureau of Public Roads. By the end of 1954, the two-year accumulation of unspent funds will be about $2 billion.

Revenue bonds for toll facilities are responsible for the upsurge. Buoyed up by more than $1.3 billion of such bonds issued last year and more than $1.4 billion estimated for this year, the cash reserve for highways keeps rising, despite the record volume of new construction.

Including money from bond sales, last year's highway revenues topped expenditures by more than $1.1 billion. This year the bureau forecasts receipts almost $850 million higher than disbursements.

At the same time capital outlay for construction—including a small amount for right-of-way—is up to new levels of $3.2 billion estimated for 1953 and $3.7 billion for this year. Total expenditures in the 1954 forecast amount to $6.4 billion, with $1.7 billion for maintenance and the rest for administration, highway police, interest and repayment of bonds.

Biggest share of the capital outlay figures goes into state highways, including toll roads, bridges and tunnels. This spending last year amounted to nearly $2.3 billion, in 1954 it is expected to increase to more than $2.7 billion. There are no reliable estimates as to how much of this year's capital outlay will go into toll facilities, but the best private guesses are about $600 million for toll roads and about $100 million for toll bridges.

Capital outlay for county and other local roads was $463 million last year, will go up to $488 million in the current year. For urban streets, the capital expenditure estimate for last year was $422 million; the forecast this year rises to $434 million.

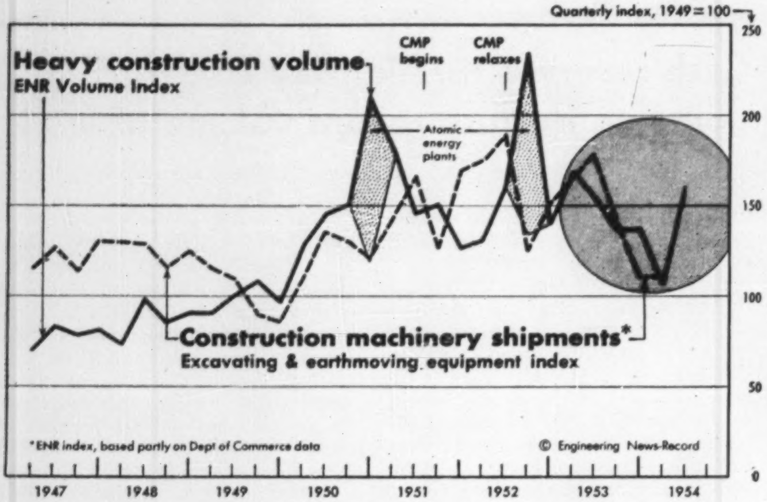
Mounting indebtedness is causing increases in two items of highway expenditure—interest charges and bond retirements. Interest payments this year go up to $217 million, $41 million higher than last year. Expenditures to retire debt obligations likewise rise by $32 million, from $333 million in 1953 to $365 million in 1954.

(B & F continued on page 90)

Highway Income and Expenditures—1953-1954

Type of Income	1953 Preliminary Estimate	1954 Forecast
From federal sources	$ 613,000,000	$ 648,000,000
Highway user imposts	2,998,000,000	3,196,000,000
Toll receipts	200,000,000	211,000,000
Property taxes and gen. revenues	1,111,000,000	1,143,000,000
Miscellaneous	126,000,000	130,000,000
Total revenues	**$5,048,000,000**	**$5,328,000,000**
Bond issue proceeds	1,832,000,000	1,922,000,000
Grand Total—Income	**$6,880,000,000**	**$7,250,000.000**
Type of Expenditure		
Capital outlays	$3,222,000,000	$3,729,000,000
Maintenance	1,687,000,000	1,730,000,000
Administration	246,000,000	254,000,000
Highway police	105,000,000	107,000,000
Interest	176,000,000	217,000,000
Total direct income	**$5,436,000,000**	**$6,037,000,000**
Obligations retired	333,000,000	365,000,000
Grand total—Expenditures	$5,769,000,000	**$6,402,000,000**

Source: U. S. Bureau of Public Roads



*ENR index, based partly on Dept of Commerce data

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Long slump in equipment shipments may be ending as contracts boom

There soon may be an end to the sharp slump in construction equipment shipments by manufacturers which began in mid-1953 (chart, above). Reason: the record volume of heavy construction contracts awarded during the second quarter of this year. That could result in contractors stepping up their purchases in the third and fourth quarters, contrary to the usual seasonal pattern. This is all the more likely because the outlook for new construction business in the next six months looks better now than it did earlier this year (ENR June 17, p. 21).

The index of equipment shipments shown in the chart is something new. It is based on dollar volume in 1949 and allows for changes in equipment prices since then. So it shows the trend in physical volume of equipment shipments, and can be compared realistically with ENR's Construction Volume Index.

• **Replacement years**—This chart shows that during the early postwar years of 1947 and 1948, contractors were buying equipment at a fast clip to replace equipment worn out during World War II. After a period of readjustment in 1949, the shipments curve follows the trend of new contract awards quite closely.

In 1950 and mid-1952, large Atomic Energy Commission awards threw the correlation off. But if you exclude the AEC contract, (tinted areas on the contract curve) the correlation between awards and shipments becomes closer.

In 1952, a peak in equipment shipments follows the sharp upturn in contracts during 1951. During this period, steel shortages and the Controlled Materials Plan were responsible for delaying shipments. But after CMP expired, the lag between awards and shipments became shorter.

• **Sharp drop**—During the second half of 1953 shipments dropped sharply after volume of contracts reported to ENR fell steeply in the second quarter. Shipments during the first quarter of this year failed to show the usual seasonal pickup.

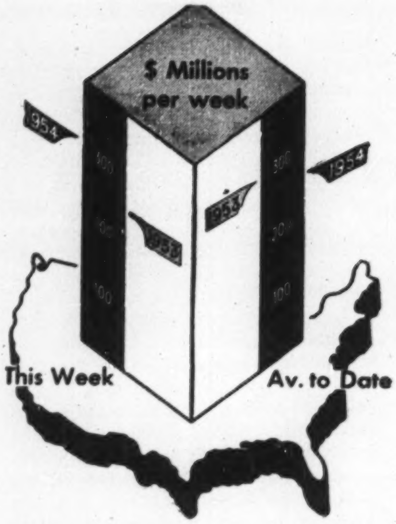
Second-quarter figures on equipment shipments are not yet available. But chances are that they'll be above the first quarter of this year. For one thing, contractor purchases normally do increase during the second quarter. Another and perhaps more important factor is the sharp increase in new contractor business during the second quarter, and this is supported by a continuing strong growth in ENR's backlog.

Business Brief . . .

• **Florida's State Board of Education** sold a bond issue of $26.7 million in school revenue bonds to an underwriting syndicate at an interest cost of 2.69%. Previously it had rejected a bid of 2.96% by another underwriting group, and had negotiated with state pension funds for sale of the bonds. However, legal counsel advised that this would be unconstitutional.

Activity This Week

As reported to ENR
(In millions of dollars)



Amount of contracts let

	This Week	Cumulative 25 wks 1954	Cumulative 25 wks 1953	% chge
Federal	$29.6	$549.3	$753.6	—27
State and municipal ..	123.2	2,223.5	2,353.3	—6
Total pub...	152.8	2,772.8	3,106.9	—11
Total priv...	160.1	3,730.8	4,314.3	—14
U. S. total..	**$312.9**	**$6,503.6**	**$7,421.2**	**—12**

Contracts by type of work

	This Week	Cumulative 25 wks 1954	Cumulative 25 wks 1953	% chge
Waterworks .	$5.7	$111.6	$120.0	—7
Sewerage ...	14.8	186.4	189.2	—1
Bridges	5.2	189.7	283.3	—33
Highways ..	45.9	810.8	810.0	0
Earthwork, waterways .	2.5	134.2	180.3	—26
Buildings:				
Public, excl. hsg.	52.5	828.9	856.9	—3
Housg., pub.	3.4	94.5	262.2	—64
Housg., priv.	77.9	2,049.3	1,960.7	+5
Commercial	27.2	610.6	530.9	+15
Industrial .	44.6	919.7	1,427.0	—36
Unclassified.	33.2	567.9	800.7	—29
Total	**$312.9**	**$6,503.6**	**$7,421.2**	**—12**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

(millions of dollars)	Week of June 17 1954	Cumulative 24 Wks 1954	% chge 1953-54
Corporate securities	$62.2	$1,431.7	—29
State and municipal:			
All except housing	106.4	2,627.5	+37
Housing	...	42.6	—80
Federal loans	4.6	57.8	+3
Federal aid	...	55.0	...
Total non-federal..	**$173,1**	**$4,214.6**	**0**
Federal approps.:			
In U. S..........	...	56.0	...
Outside U. S....	...	4.6	...
Total new capital..	**$173.1**	**$4,275.3**	**2**

ENR indexes

		Base years = 100 1913	1926	1949
Constr.	**..June '54**	**622.49**	**299.23**	**130.50**
cost	...May '54	618.69	297.40	129.70
Bldg.	**...June '54**	**440.12**	**237.92**	**125.11**
cost	...May '54	438.69	237.14	124.70
Volume	**..May '54**	**648**	**263**	**187**
	April 54	517	210	149

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330 West 42nd Street
New York 36, N. Y.

Bids: July 1, 1954

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 1st day of July 1954, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, N. F. Ronan, Acting District Engineer, 353 Broadway, Albany, N. Y.						
Essex	FARC 54-73	Ticonderoga-Montcalm Landing, S. H. 8073 Proj. F-371(4)	2.33	Asp. Conc. Opt.	$13,000 Plans $10	$243,000.00
Essex	FARC 54-74	Whallonsburg-Essex, S. H. 8063 Essex-Willsboro, Pt. 1, S. H. 8128 Proj. F-4 7(8)	7.67	Asp. Conc. Opt.	$30,000 Plans $15	566,000.00
Saratoga	FARC 54-8	Schenectady County Line-Scotch Church, S. H. 1706 Scotch Church-Galway-Kimballs Corners, S. H. 1851 Proj. S-758(3)	8.27	Asp. Conc. Opt.	$30,000 Plans $25	530,000.00
DISTRICT No. 2, L. Ketchum, District Engineer, 109 No. Genesee Street, Utica, N. Y.						
Herkimer	M 54-3	Lock 17-E Little Falls (Barge Canal)	....	Installing New Upper Lock Gate & Relining Gate Recess	$7,300 Plans $10	133,234.50
Herkimer	M 54-4	Lock 17-E Little Falls (Barge Canal)	0.16	Construction of Lower Guide Wall	$33,000 Plans $10	592,607.00
Madison and Oneida	M.T. 54-2	New York State Thruway—Mohawk Section—Subs. 1, 2, 3, 4, 5—(Onondaga-Madison Co. Line to 4± Miles West of Westmoreland Interchange)	24.10	Erection of 2.09 Miles of Cattle Fence at Various Locations	$900 Plans $10	15,000.00
Madison	M.T. 54-3	New York State Thruway—Mohawk Section+Sub. 2 (Canastota Gas Station-Restaurant Site, Type B)	....	Grading, Paving and Misc. Work	$9,000 Plans $10	161,000.00
DISTRICT No. 3, William Robinson, District Engineer, Weigh Lock Building, Syracuse, N. Y.						
Tompkins, Cortland, and Tioga	FARC 54-77	Dryden-Harford, S. H. 8016; Harford Mills-Dryden, Pt. 1, S. H. 1075; Harford, S. H. 379 and Richford-Harford Mills, S. H. 1452 Proj. S-63(3); F-427(8)	9.58	Asp. Conc. Opt.	$47,000 Plans $15	845,000.00
Seneca	FASSH 54-12	S. H. No. 273-Magee Proj. S-SG-284(3) Cont. #1	3.85	9" Cem. Conc. Pavt. 24' Wide	$35,000 Plans $10	603,000.00
DISTRICT No. 5, C. R. Waters, District Engineer, 65 Court Street, Buffalo, N. Y.						
Cattaraugus and Erie	FASSH 54-13 FARC 54-76	Ellicottville-Springville, Pts. 2 & 3 Springville Village, S. H. 989 Hamburg-Springville, S. H. 528 Proj. S-365(2); S-369(2)	10.07	Asp. Conc. Opt.= 10.05 Mi. Misc. Work = 0.02 Mi. 2 Closed Box Brs. 24' & 24' 1 Cont. Deck Truss Br. 650'	$147,000 Plans $50	2,690,000.00
Chautauqua	FARC 54-75	Sinclairville-Cassadaga, Pts. 1 & 2, S. H. 1012-1012A-8108 Pratt Corner-Sinclairville, S. H. 1471 Proj. S-796(3)	6.84	9" Two Course Cem. Conc. Pavt. 24' Wide=6.20 Mi. Asp. Conc. Opt.= 0.60 Mi. Misc. Work = 0.04 Mi. 1-Comp. I-Beam Br. 110.5' 1-Comp. I-Beam Hy. Sep. 123.7' 1-Conc. Slab Br. 24' 1-I-Beam Br. 33'	$90,000 Plans $25	1,600,000.00
Erie	FASS 54-11	Harlem Avenue C. R. 210 Proj. S-353(1)	0.21	Asp. Conc. Opt.= 0.20 Mi. Misc. Work = 0.01 Mi. Widening Exist. 259.4' Deck Girder	$17,000 Plans $10	309,000.00
DISTRICT No. 6, J. H. Thomas, District Engineer, State Office Building, Hornell, N. Y.						
Chemung and Tioga	R.C. 54-72	Br. No. 1, S. H. 5471; Br. No. 1A, S. H. 5215 and Br. No. 1, S. H. 1932	....	Cleaning & Painting 3 Bridges	$1,400 Plans $10	25,000.00
DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Duzee Street, Watertown, N. Y.						
Franklin, Jefferson, Lewis and St. Lawrence	R.C. 54-71	Br. No. 1, S. H. 5468; Br. No. 1, S. H. 428; Br. No. 1, S. H. 1165; Br. No. 1, S. H. 5332A; Br. No. 1, S. H. 1192; Br. No. 1, S. H. 735; Br. No. 2, S. H. 5509	....	Cleaning & Painting 7 Bridges	$1,400 Plans $10	24,000.00
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Westchester	R.C. 54-70	Tarrytown-White Plains Pt. 1, S. H. 503	0.01	Reconstruction of Culvert & Misc. Work	$300 Plans $10	5,000.00
Westchester	WS #2-W	Access Road to Weighing Station No. 2 Adjacent to Port Chester Village, S. H. 5719	0.10	Asp. Conc. Opt. & Misc. Work	$1,000 Plans $10	19,000.00
DISTRICT No. 10, M. E. Goul, District Engineer, Montauk Highway at Little East Neck Road, Babylon, L. I., N. Y.						
Bronx	N.E.T. 54-1	New York State Thruway—New England Section (Cont. 1A Demolition)	2.33	Demolition of Buildings	$700 Plans $10	12,000.00
Bronx	FAMDE 54-5	Major Deegan Expressway Extension Cont. 5A Proj. UI-1082(17)	(1. 0 Hwy.) (3.12 Acc.)	9" Cem. Conc. Pavt. 2 @ 36' Var. Wid = 2.28 Mi. Sheet Asph.= 1.44 Mi. Asp. Conc. Opt.= 0.33 Mi. Granite Block = 0.07 Mi. Hy. Sep. Comp. I-Beam 160' Hy. Sep. Rigid Frame 44.3'	$180,000 Plans $50	3,182,000.00

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids July 6, 1954

Electric Sign Installation Route 25 CL (1927) Route U. S. 1 & 9 (1953), Secs. 2 & 4

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

Electric Sign Installation(Route 25 CL (1927) Route U.S. 1 & 9 (1953), Sections 2 & 4, Town of Kearny and City of Jersey City, Hudson County. The principal items of work are:

Estimated: 12 Acrylic face aluminum signs:
2 Nominal size 24" x 48"
2 " " 30" x 48"
2 " " 30" x 66"
3 " " 24" x 120"
1 " " 24" x 144"
2 " " 24" x 180"
4 type AFE Supporting Poles
2 Supporting Frames 3' x 3' x 4'4½" ±long
2 type SPA Sign Posts with transformer bases

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, July 6, 1954, at ten o'clock (10:00 A.M. —EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 138, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4194)will be received at Lindsay, California, until July 29, 1954, for furnishing labor and materials for earthwork, pipe lines, and structures, Units 2 and 3, Exeter Irrigation District, Central Valley Project, California. Location: Exeter, California. Principal items are: furnishing and laying 205,000 lin. ft. of concrete pressure pipe, diameter 12 to 42 inches, with alternative of substituting asbestos-cement pipe for concrete pipe of internal diameters of 24 inches or smaller; 128,000 cu. yds. excavation for trenches and structures; furnishing and installing pumping units with mechancial and electrical accessories, valves, meters, and miscellaneous metalwork; and other work. Completion time 450 days. For particulars, address Bureau of Reclamation, Lindsay, California; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: July 15, 1954

Grading, Embankment, and Sewer Load Relieving Structure Contract No. P-1

DELAWARE RIVER PORT AUTHORITY
Administration Building
Camden, New Jersey

Sealed bids will be received for Grading, Embankment and Sewer Load Relieving Structure for approaches in Philadelphia, Pennsylvania to new Bridge between Packer Avenue, Philadelphia, Pennsylvania, and Gloucester, New Jersey, known as Contract No. P-1, at the office of of the Executive Director of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey until 2:00 P.M., (Daylight Saving Time), July 15, 1954 at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon a deposit of $10.00 which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified check in the sum of $100,000 payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania or Camden, New Jersey, and must not be enclosed with the sealed bid. The surety's consent must be shown. The bidder to whom the contract in awarded will be required to furnish a performance and Labor and Materialmen's Bond in the sum of 100 per cent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO
Executive Director

Bids: July 13, 1954

New Jersey Turnpike Authority

CONTRACT NO. GR-5

Proposals are invited for Contract No. GR-5 which involves the construction of additional water supply wells at Service Areas 3-S, 4-N and 7-S on the New Jersey Turnpike. Service Area 3-S is located in Delaware Township, Camden County; Service Area 4-N is in Mount Laurel Township, Burlington County and Service Area 7-S is in Cranbury Township, Middlesex County. The work includes the installation of wells, pumps, well houses, connections to existing water systems and appurtenances together with a water conditioning installation at Service Area 7-S.

Proposals will be received at the New Jersey Turnpike Authority, Administration Building, New Brunswick, New Jersey, until 11:00 O'Clock, Eastern Daylight Saving Time on the morning of July 13, 1954, at which time and place said proposals will be publicly opened and read.

Bidders must submit with their proposal a financial statement and a statement of plant and equipment.

Contract documents may be examined during office hours after June 21, 1954, at the office of the Authority and at the office of the Consulting Engineers, Elson T. Killam, 529 Millburn Avenue, Short Hills, New Jersey. Contract documents will be furnished upon payment of Ten Dollars ($10.00) for each set, upon application to the Authority. Contract documents are not required to be returned and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman
June 21, 1954

OFFICIAL PROPOSALS

Bids: July 6, 1954

Reconstruction of the Fender System, Salem River Bridge, Route 44 (1927) Route 49 (1953)

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

Reconstruction of the Fender System on the Salem River Bridge on Route #44 (1927) Route #49 (1953), between the City of Salem and Penns Neck Township, Salem County. The principal items of work are:

Estimated:
8,840 lin. ft. Treated Timber Piles
38 M. B. M. Treated Timber
550 lbs. Galvanized Tie Rods
L. S.—Clearing Site

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, July 6, 1954, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Bids: July 15, 1954

Construction of Irrigation System

PUERTO RICO WATER RESOURCES AUTHORITY
SAN JUAN, PUERTO RICO

Commonwealth of Puerto Rico, PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO. Sealed proposals will be received at San Juan, Puerto Rico until 2:00 o'clock P.M., July 15, 1954 for the construction of earthwork, canal lining, and structures from station 400+00 to station 809+00 of main canal, including approximately 210,000 cu yd excavation, 88,000 sq yd canal lining, 2,850 cu yd concrete in structures, 2,000 lin ft various size concrete pipe, weirs, gates, etc. The work covers the second stage of Lajas Valley irrigation system in the Southwestern area of Puerto Rico near the towns of Yauco and Lajas.

Plans, Specifications, and Contract Documents may be obtained at the office of the Purchasing Officer, Puerto Rico Water Resources Authority, San Juan, Puerto Rico upon deposit of one hundred dollars ($100.00) in cash, money order or certified check payable to the Puerto Rico Water Resources Authority. Deposit will be returned in full upon return of the plans and specifications within twenty (20) days after the opening of the bids.

OFFICIAL PROPOSALS

Bids: July 26, 1954

Construction of Superstructure

NEW YORK STATE BRIDGE AUTHORITY

Advertisement for Proposals
for the
Construction of the Superstructure
of the
Kingston Rhinecliff Bridge
Across the Hudson River

The New York State Bridge Authority will receive sealed proposals for the construction of Contract No. 2, Superstructure, of the Kingston Rhinecliff Bridge over the Hudson River until 2:00 P.M. Eastern Daylight Saving Time, on the 26th day of July 1954, at the Authority's office, 22 Ferry Street, Kingston, New York, at which time and place proposals will be publicly opened and read aloud.

The work includes the construction of the steel superstructure and concrete deck of a high level fixed bridge with one 36 ft. wide roadway.

The bridge consists of 2563 linear ft. of approaches having deck plate girder spans varying from 87 ft. to 150 ft. in length and 5200 linear ft. of truss spans over the river, including two simple truss spans 298.5 ft., two three-span continuous truss, (498 ft., 800 ft., 498 ft.), over the two river channels and one two-span continuous truss with 498′ spans.

The principal items of work include:

	Approximate Quantities
Structural Steel, Truss Spans	24,000,000 lbs.
Structural Steel, Girder Spans	5,600,000 lbs.
Concrete, Deck	8,700 cu. yds.
Bar Reinforcement	1,800,000 lbs.

Plans, Specifications and Proposal Form for the work are on file in the office of the New York State Bridge Authority and in the Office of D. B. Steinman, Consulting Engineer, 117 Liberty Street, New York, N. Y., and may be inspected by prospective bidders during office hours.

Plans, Specifications and Proposal Forms may be obtained from D. B. Steinman, Consulting Engineer, 117 Liberty Street, New York, N. Y., upon application and payment of a fee of fifty ($50.00) dollars, no part of which will be refunded.

Bids must be made upon the proposal forms included in the Contract Documents. Each proposal must be accompanied by draft or certified check payable to the order of the New York State Bridge Authority for the sum of four hundred and fifty thousand ($450,000) dollars.

The right is reserved to reject any or all bids.

NEW YORK STATE BRIDGE AUTHORITY
Robert Hoe, Chairman

Bids: July 22, 1954

Integrated Sewerage System

FAIRFAX COUNTY, VIRGINIA

Sealed bids will be received by the Board of County Supervisors of Fairfax County, Virginia at the Office of the Sanitary Engineer, County of Fairfax, Fairfax, Virginia, until Thursday, July 22, 1954, at 2:00 o'clock, P.M. Eastern Daylight Savings Time, for the construction of:

CONTRACT NO. 21: Approximately 20,500 lineal feet of 8 and 10-inch sanitary sewers and appurtenances.

CONTRACT NO. 22: Approximately 23,700 lineal feet of 8 to 15-inch sanitary sewers and appurtenances.

CONTRACT NO. 23: Approximately 19,000 lineal feet of 8 and 10-inch sanitary sewers and appurtenances.

CONTRACT NO. 24: Approximately 35,000 lineal feet of 10 to 42-inch sanitary sewers and appurtenances.

Promptly thereafter they will be publicly opened and read in the Board of County Supervisors Room, County Office Building, Fairfax, Virginia.

Plans, specifications and contract documents may be examined and copies thereof may be obtained at the Office of the Sanitary Engineer, on or after July 1, 1954, upon payment of Ten Dollars ($10.00) per set for each contract, which amount shall not be returnable.

All bids must be on the form contained in the Contract and Specifications.

Contractors, whether resident or nonresident in Virginia will be required to show evidence of a Certificate of Registration as required by Chapter 7 of Title 54 of the Code of Virginia before their bids will be considered, if the bid is $20,000 or more.

Each bid must be accompanied by cash, or by the certified check of the bidder, made payable to the Director of Finance, County of Fairfax, Virginia, or by an acceptable bidders' bond in a amount not less than Five Percentum (5%) of the amount of the total bid. The successful bidder will be required to furnish a performance and maintenance bond in a penal sum equal to the full contract price.

No bid may be withdrawn for a period of thirty (30) days after the actual opening thereof and the right is reserved to waive any informality therein and to reject any or all bids.

COUNTY OF FAIRFAX, VIRGINIA
By: Harry L. Hale, Sanitary Engineer
Dated: June 16, 1954

Bids: Jul 13, 1954

Contract 441

CLEARING AND GRUBBING
PEPACTON RESERVOIR

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, July 13, 1954, for Contract 441, for clearing and grubbing the easterly portion of the Pepacton reservoir and performing related work, in the Towns of Middletown, Andes and Colchester, Delaware county, New York. The work will comprise the clearing of approximately 700 acres, the grubbing of about 580 acres, required excavation and removal of excrementitious material and, to the extent specified, the collection and disposal of debris carried or deposited by the streams from the entire reservoir area and the cleaning of certain wooded and adjacent areas upstream of the reservoir, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of thirty thousand dollars ($30,000.00) for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1316 at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) i ncash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: July 1, 1954

Construction of Structures

PENNSYLVANIA TURNPIKE COMMISSION

Harrisburg, Pennsylvania
NOTICE TOBIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a.m., Eastern Daylight Saving Time, the 1st day of July 1954, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and publicly opened and read aloud for the following contract:

For the construction of structures and the grading, drainage and paving of the Turnpike Section 35-I, part of the Northeastern Extension of the Pennsylvania Turnpike in Lower Macungie Township, Lehigh County, Commonwealth of Pennsylvania, this section being situated as follows:

Beginning at a point 256 feet southeast of the centerline of Little Lehigh Creek at Turnpike station 382+00 in Lower Macungie Township, Lehigh County; thence in a northwesterly direction 13,410 feet to Turnpike station 516+00, at a point approximately 125.7 feet northwest of the centerline of L. R. 39027 in Lower Macungie Township, Lehigh County, a distance of aproximately 2.54 miles.

The approximate quantities of the principal items are as follows:

Class 1 Excavation	309,490 c. y.
Class 2 Excavation	11,680 c. y.
Class 2A Excavation	1,160 c. y.
Special Subgrade	108,331 s. y.
Reinforced Concrete Pavement	67,375 s. y.
Class A Concrete	1,479 c. y.
Class B Concrete	2,199 c. y.
Plain Steel Bars	384,250 lbs.
Fabricated Structural Steel	1,384,500 lbs.
Median Divider	12,464 l. f.

Copies of plans, specifications and other contract documents, including cross-sections, are on file and open to public inspection at the office of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, not later than 17 June 1954. Plans, specifications, cross-sections and other contract documents will be available by this date for inspection or for mailing to prospective bidders. Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy. Copies of cross-sections may be purchased from the Pennsylvania Turnpike Commission for the sum of fifty (50.00) dollars per set.

Plans and contract documents, for this section, exclusive of cross-sections and specifications, may be purchased from the Pennsylvania Turnpike Commission for the sum of Fifteen (15.00) Dollars for each set. No refund will be made for plans returned unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P. O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications, contract documents, and cross-sections.

The character and amount fo bid security to be furnished by the bidder is stated in the Instructions to Bidders.

The Commission reserves the right to waive any informalities in or to reject any or all bids.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
10 June 1954

CONTRACTORS
WATCH
THIS SECTION
for New Projects
Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

CLASSIFIED **SEARCHLIGHT SECTION** ADVERTISING

EMPLOYMENT • BUSINESS • **OPPORTUNITIES** • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)

$1.80 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.

POSITION WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

PROPOSALS, $1.80 a line an insertion.

INFORMATION:

BOX NUMBERS count as 1 line additional in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:

The advertising rate is $20.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

Send NEW ADVERTISEMENTS: To New York Office W. 42nd St., N. Y. 36 for July 8th issue closing June 25th.

ENGINEERS

Foreign Service

Graduate Chemical, Mechanical, Electrical & Construction Engineers with minimum of 5 years' experience. For specialized assignments commensurate with qualifications in various phases of construction, estimating materials and cost control, planning and refinery process work. Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 30

Arabian American Oil Company
505 Park Avenue, New York 22, N. Y.

BRIDGE ENGINEERS AND SPECIFICATION WRITERS

Civil Graduates of accredited U. S. colleges. Must have not less than the following experience:

Detailers—2 years structural steel or reinforced concrete detailing.

Designers—5 years responsible work on structural steel and concrete including work on long span bridges.

Squad Leaders—3 years responsible charge of squad on structural steel detailing.

Specification Writers—With design and field experience for writing specifications for steel bridges, concrete structures, and highway construction.

Please mail complete resume together with salary required to:

Howard, Needles, Tammen & Bergendoff
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STRUCTURAL DETAILERS CHECKERS

Must be experienced, ideal working conditions, Air-Conditioned Office, Employees' Benefits. Vacation with Pay — Salary Commensurate With Ability.

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Young men with civil or architectural engineering degrees.

Ours is a sheet metal building products industry of national repute offering an unusual opportunity to young men with knowledge of building construction. Excellent outlook for advancement in a growing company with a bright business future.

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REPLIES (Box No.): Address to office nearest you
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CHICAGO: 520 N. Michigan Ave. (11)
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BRIDGE—HIGHWAY Engineers—Designers—Draftsmen. For work on bridges, expressways and turnpikes. Location Midwest. Permanent positions with periodic promotions depending on experience and ability. Paid vacations, sick leave, hospitalization and life insurance. Include education, experience, reference and salary expected in application letter. P-2109, Engineering News-Record.

EXPERIENCED STRUCTURAL Engineer for Design and Estimating Industrial type Buildings. Write Allied Steel Products Corporation, P. O. Box 6168, Tulsa, Oklahoma.

EXPERIENCED STRUCTURAL Steel Detailers and Checkers. Write Allied Steel Products Corporation, P. O. Box 6168, Tulsa, Oklahoma.

WANTED: Instructor of Engineering Drawing and descriptive geometry. Salary up to $4,700 for 9 month period and assistant professorship for qualified person. M. E. graduate preferred. Dept. of Engr. Drawing, University of North Dakota, Grand Forks, North Dakota.

MALE HELP Wanted: Experienced Structural Draftsman. Personnel—Box 1087, Charlotte 1, N. C.

WANTED BY long established Consulting Engineer the following men for permanent positions: Bridge Designer with at least 5 years experience in both steel and reinforced concrete. Structural Engineer, recent graduate with good theoretical knowledge. Highway Engineer, experienced in interchange design. P-2913, Engineering News-Record.

STRUCTURAL DESIGNERS, draftsmen and checkers preferably with previous highway bridge experience. Immediate positions in Metropolitan New York area. Box P-3037, Engineering News-Record.

CHIEF STRUCTURAL Designer — Must have extensive experience in highway bridge design. Supervisory ability. Location—Metropolitan New York. Box P-3038, Engineering News-Record.

WANTED: STRUCTURAL steel detailer and checker for North Carolina Fabricator. Please submit resume of experience and salary required. P-2980, Engineering News-Record.

MATERIALS ENGINEERS and Inspectors experienced in concrete, bituminous paving and soils. Vacancies in several grades. Write complete details to Toledo Testing Laboratory, Toledo, Ohio.

CONSTRUCTION — GENERAL Superintendent of Construction fully qualified by experience to coordinate activity of field superintendents and manage all field construction work for large midwestern building contractor specializing in industrial and heavy building construction. Send data concerning personal background and construction experience promptly to Box P-3080, Engineering News-Record.

ENGINEER WANTED—Organization planning establish research fellowship for study of land use, conservation and rehabilitation wishes contact graduate civil engineer age 25 to 35, preferably some experience gravel economics and operation with imagination and interest in landscape engineering. Objective eventual specialized consulting association. Location Eastern States. Reply Box P-3093, Engineering News-Record.

(Continued on the opposite page)

ESTIMATOR WANTED

HEAVY CONSTRUCTION

Must be completely familiar with analyzation and pricing of all types heavy construction. Location — Southern Indiana. We are a good company and can offer an attractive arrangement to a qualified person.

P-3092, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ASSISTANT PLANT SUPERINTENDENT

Long-established, nationally known manufacturer desires young graduate mechanical engineer with some experience in light manufacturing to accept position of Assistant Plant Superintendent in one of its subsidiary companies, located in western Ohio. An excellent, permanent position with promotional opportunities. Must be aggressive, have supervisory ability and be production minded. State age, experience, education, salary requirements and other information.

P-3057, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ENGINEER-EXECUTIVE

for position of Technical Supervisor of Materials testing laboratory.

Must have at least 15 years engineering experience in soils, concrete and asphalt paving. Education and experience should be comparable to that required for Chief or Assistant Chief Engineer of Tests of one of the larger State Highway Departments. Furnish complete information and photo, if available. Replies confidential.

P-3085, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

TEACHING POSITIONS

(1) Engineering graduate to teach ENGINEERING DRAWING and/or Mechanics subjects; industrial and teaching experience desirable; opportunity to work for advanced degrees.

(2) Engineering graduate with experience in Highway Engineering; M.S. degree and teaching experience desirable.

Salary offered depends upon qualifications.

Write: Head, Department of Civil Engineering and Mechanics

LEHIGH UNIVERSITY
Bethlehem, Pennsylvania

POSITIONS VACANT
(Continued from the opposite page)

ENGINEER, CIVIL or equivalent, for sales work, to develop Engineering Department, to promote new structural products having National market and great potential, long established manufacturer. P-3077, Engineering News-Record.

CHIEF ESTIMATOR to head bidding department of building contractor situated in the middle west. Apply to Box P-3081, Engineering News-Record, sending biographical data and record of experience with application.

OHIO ENGINEERING firm needs engineers experienced in highway and bridge design for permanent work on urban expressway projects. Reply giving full experience record, personal history and salary desired. P-3065, Engineering News-Record.

WATERPROOFING ESTIMATOR and take-off. Well established, 10 year old NYC subcontractor doing national business desires to increase waterproofing business on bridge abutments, air bases, sewage plants, joint sealing, etc. Guniting also considered. Excellent opportunity for right man to develop permanent, lucrative position with possible share in profits. Contacts desirable but not essential. P-3118, Engineering News-Record.

WANTED—ESTIMATOR for Plumbing, Heating, Air Conditioning & Process Piping. Must be able to do accurate take offs and have full knowledge of piping industry. Minimum of 5 years experience required. Location Central New York. Give full particulars with first reply. State education, experience, salary desired and date available. P-3115, Engineering News-Record.

EXPERIENCED ESTIMATOR under 50 to make quantity take-offs, help price purchase material, expedite and do field supervision. All work competitive. We specialize in construction of industrial, commercial and public works. Permanent job and location for right man, excellent salary and bonus. Send qualifications experience and availability to Post-Office Box 66, Hershey, Penn.

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SALES ENGINEER — Rochester, New York and Pittsburgh, Pennsylvania territories open with established national concern selling prefabricated metal products to engineering and construction markets. Positions are permanent and offer excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Ages 24 to 30. Car furnished. Complete training program. Salary and bonus. RW-2289, Engineering News-Record.

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OVERSEAS PROJECTS Guide to most active constructors-engineers, oil co's., gov't & UN groups hiring for foreign projects. Send $1. Cove-McKane Int., GPO Box 126E, NY 1, NY.

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Excellent opportunities for immediate permanent employment with a progressive organization, having a long range program of important engineering work. Experience preferred in engineering design for highways, bridges, airports, industrial, special-purpose buildings, water and sewage treatment plants. Engineers needed also with experience in writing specifications and reports.

Desirable working conditions at salary commensurate with ability. Write to nearest office for application blank. All replies will be held confidential and *will be promptly acknowledged.*

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- **Men to pave roads (asphalt)**
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Airmail experience including salaries received to:

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WANTED

ENGINEER with guts and vision to take charge of, design and actually build, prestressed concrete beams and slabs. Salary in line with proven ability. Complete resume first letter.

P-3107, Engineering News Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS WANTED

PROJECT MANAGER or Contractor's executive available. Broad experience heavy construction and buildings. Thorough organizer. Sound knewledge of field supervision, estimating, cost control, purchasing, subcontracts. New York preferred. PW-2942, Engineering News-Record.

CIVIL ENGINEER, 14 years experience. Desires position with general contractor. Estimating, purchasing of material & sub-contracts, expediting, cost control. Location immaterial. Lawrence Stotts, 6713 Anita, Dallas, Texas.

STRUCTURAL ENGINEER, 28 years experience subways, buildings, foundations, docks, chemical and power plants, indeterminate analysis. PW-3039, Engineering News-Record.

PROJECT SUPERINTENDENT capable of estimating handling sub contractors and running entire project. Age 37, 18 years' experience will travel, minimum salary $800.00 per month. PW-2894, Engineering News-Record.

ENGINEER, REG. P.E. 40 years' experience. Adjustment of contractors' claims. Change orders. PW-2840, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT. New York area, Carpenter Foreman for 25 years in all its branches, 4 years Superintendent. Available July. PW-2647, Engineering News-Record.

SUPERINTENDENT EXTENSIVE experience on Rock. Open cut, shafts, tunnel, quarry, subway. Box PW-3120, Engineering News-Record.

CONSTRUCTION ENGINEER, age 34, family, experience on design, costs supervision desires field position in Northeast States or Germany. PW-3105, Engineering News-Record.

SALES-ENGINEER: BSCE, 32, 7 yrs with national steel fabricating firm in sale and promotion of building materials including new prestressed concrete product. Will relocate. PW-3103, Engineering News-Record.

CHIEF ESTIMATOR available to responsible General Contractor on thifty days notice. Sixteen years experience bidding, buying, building municipal, industrial and Federal projects. Excellent organizer. Record indicates satisfactory percentage obtained of dollar volume bid competitively. PW-3094, Engineering News-Record.

(Continued on the following page)

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Graduate engineer with minimum 5 years experience maintaining and inspecting pressure vessels and oil handling equipment, or 5 years of experience in structural inspection, diversified construction work and field engineering. Must have thorough knowledge of A. P. I. and A. S. M. E. codes for fired and unfired pressure vessels and for pressure piping.

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To develop inspection methods and promote maximum thoroughness and efficiency. Graduate engineer or metallurgist with 10 years experience in design or inspection of petroleum producing and refining equipment, 5 years of which experience must be in inspection work entailing all-round knowledge of the plant equipment found in petroleum producing and refining.

Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 40

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P. O. Box 366 Harrisburg, Pennsylvania

POSITIONS WANTED
(Continued from preceding page)

CIVIL ENGINEER: B.S.C.E.; 30; single; desires position overseas, 3½ yrs. design and construction experience (Domestic and Foreign) on industrial and airbase construction. Available immediately. References. PW-3074, Engineering News-Record.

CIVIL ENGINEER, now chief of party on heavy construction, 37 years old, 2 years college, 15 years experience, both architectural & highway-railroad, water and sanitary. 85% in field. Capable of any civil engineering work other than structural design. PW-3070, Engineering News-Record.

YOUNG WOMAN Executive sec'y. poised, good appearing, desires overseas job Eng. background, exc. ref. PW-3072, Engineering News-Record, 520 N. Michigan Ave., Chicago, Ill.

STRUCTURAL ENGINEER—experienced in design of steel & conc. bldgs. including design of large lift slabs; structural steel checking & detailing. Location S.E. USA. PW-3063, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT—ability to produce results and cut costs. Young, ambitious, graduate civil engineer with a very good record working in the field for general contractors on large building projects as an engineer or superintendent. Want responsible position in Midwest area. PW-3062, Engineering News-Record.

ARCHITECTURAL DRAFTSMAN, Structural eng'r., Industrial & Commercial bldg's., Prefer Central States. PW-3054, Engineering News-Record.

REGISTERED P.E., BSCE, age 34, married, 13 yrs. experience field and office incl. heavy constr. (strong in concrete), structural design, W.W.II engr. officer. Presently employed plant maint. engr. Looking for opportunity domestic or foreign. PW-3052, Engineering News-Record.

ESTIMATOR—16 years experience industrial and institutional building construction. Accurate quantity take off, coupled with field experience, sound labor pricing. Preliminary design, working drawings, specifications, client negotiation. Not afraid of board work. Unassuming, professional personality. Age 39, excellent references. PW-3111, Engineering News-Record.

CHIEF ENGINEER. Successfully completing major dam project. Seek incentive opportunity. Graduate, Registered Civil and Structural Engineer all Pacific States. Soils and Foundations expert. Twenty years experience design of major dam, hydro projects, bridges, varied industrial buildings, and facilities. Personable. Aggressive. PW-3123, Engineering News-Record.

PART TIME WORK WANTED

PART TIME Work—Retired licensed structural engineer available for structural design, shop detailing, estimating. PTWW-3025, Engineering News-Record.

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MANUFACTURERS AGENT seeks 1 or 2 additional lines. Straight Commission of Jobbing basis. Excellent connections Architects, Contractors. P. O. Box 946, Albany, N. Y.

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BO-3000, Engineering News-Record
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MADE BY DUFF-NORTON MANUFACTURING COMPANY, SERIES 25H-9.3.

Sealed bids will be received by the undersigned at 1:00 P.M., D.S.T., Thursday, July 1, 1954, for all of the above listed jacks or any part of the lot. These jacks have been used on only one occasion and can be examined at Jersey City Terminal, The Central Railroad Company of New Jersey, by applying to the undersigned. The right to reject any or all bids is reserved.

S. L. MAPES, CHIEF ENGINEER
The Central Railroad Company of New Jersey
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Because of the Holiday, Independence Day, July 4th (celebrated July 5th), the "Searchlight" pages of the

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Close for press earlier than the usual weekly closing time.

The cooperation of advertisers is solicited in forwarding new copy, or changes of copy, to reach us accordingly.

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Display and Undisplayed Ads
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FS-3109, Engineering News-Record
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FULLY EQUIPPED DRAG LINE AND CLAM BUCKET 70' BOOM

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WITH
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AVAILABLE JULY 1, 1954

1—COMPLETE GREASE TRUCK UNIT
6—LIGHT PLANTS & WELDER COMBINATION
ON 4 WHEEL TRAILERS G. E.
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complete with 55 cu. yd. aggregate & cement bins; 2 cu. yd. mixer and semi-automatic cement & water batchers; under track screw conveyor; 1032 bbl. cap. cement silo with elevator.

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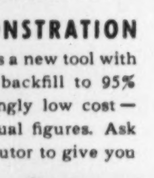

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NEW PRODUCTS

Stumper doubles as ripper

The time, effort and expense required to remove deep-rooted stumps and trees is asserted to be greatly reduced by the Pull Stumper. Designed for use with track-type tractors, the unit consists of a single tooth constructed of cast steel and connected to the tractor drawbar by a one-piece cast steel frame. Operation is by cable, working through an A-frame, from one drum of a cable control.

Forward pull of the tractor drags the curved tooth into the ground to any desired depth—maximum of 36 in.—to cut lateral roots. The tooth is then hooked into the stump and forward motion combined with line pull removes the stump and roots, says the manufacturer.

The same action can be applied to the removal of boulders and the ripping of old surfacing, hard packed soil and other materials. A hook on the rear allows use of the tool for lifting and loading.

When not in use the stumper is raised to a vertical position to permit free use of the tractor for other purposes. According to the manufacturer, the tool is easily and quickly detached when necessary. FLECO CORP., P.O. Box 2370, JACKSONVILLE, FLA.

Catalytic device tames diesel exhaust

A new catalytic muffler is said to reduce effectively the noxious and irritating components of 4-cycle diesel engine exhausts. The new device, called the Dieseler, attaches directly to the engine exhaust manifold to convert hot engine gases to harmless carbon dioxide and water vapor.

Each unit is a compact porcelain structure containing 73 slender porcelain rods that are coated with the catalytic agent—alumina and platinum alloy. According to the manufacturer, these rods are streamlined in cross section so that back pressure is minimized. Overall dimensions of the unit are 7 x 12 x 27 in.

Prototype Dieselers have been laboratory tested on diesels that have been loaded to simulate the work cycles of trucks, buses, tractors and locomotives, and results indicate that the device eliminated 65-85 percent of irritating hydrocarbons and 80-90 percent of carbon monoxide.

The unit has been installed on an International Lodover tractor-shovel powered by a 62½-hp 4-cycle diesel. The owner reports that even with continuous operation of the tractor-shovel, carbon monoxide exhaust concentrations in the shaft have dropped below 0.003 percent. This represents an elimination of about 90 percent of the carbon monoxide in diesel engine exhaust and is well below the Bureau of Mines maximum atmospheric concen-

(*New Products continued on p. 106*)

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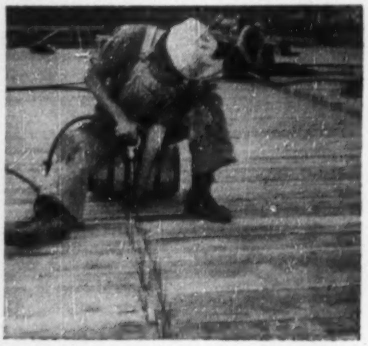
tration of 0.01 percent for a safe 8-hr. exposure.

Operators of the Lodover have said that there are no detectable traces of hydrocarbon odors or smoke from the unit even when operated in dead-end headings 1,000 ft from the entrance.

The new development follows the Oxy-Catalyst muffler for engines running on unleaded gasoline, and a third muffler soon will be introduced for two-cycle diesel engines. Oxy-Catalyst, Inc., Wayne, Pa.



Semi-automatic nailers handle up to 20-penny size

Two new semi-automatic nailers have been developed to handle 3 to 6-penny and 16 to 20-penny nails. Both are 6 in. long, weigh less than a pound and will attach to any pneumatic hammer with a No. 2 Morse Taper.

In using the smaller unit, designated 6-P, the nail is dropped head first into the barrel of the nailer, placed against the work and the trigger pulled.

The larger unit, the 20-P, is said to be the first semi-automatic nailing device that drives larger nails and spikes as fast as box nails with practically no operator fatigue. The nails or spikes are first started with a hand hammer, then driven and countersunk with the nailer.

The nailers have only two moving parts and it is claimed that they can be attached to a pneumatic hammer in less than 10 seconds. No lubrication is required. The Fox nailers are manufactured by Morton & Co., 1500 S. W. Taylor, Portland 5, Ore.

Two-way radios operate interchangeably on 6, 12 v

A new line of 144-174 mc, 10 and 25-watt FM mobile two-way radios are built to operate interchangeably

(*New Products continued on p. 108*)

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Behind those two words may be definite knowledge of the water tables and formations of that particular area gained through experience . . . or perhaps geologists working with the latest equipment possibly including electronic resistivity tests have "pinned the point" with all the accuracy that science will permit.

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Whatever a water need may be . . . or wherever it may exist, it is wise to first consult your nearest Layne & Bowler associate company. Information on any phase of water development, maintenance or modernization is yours free for the asking.

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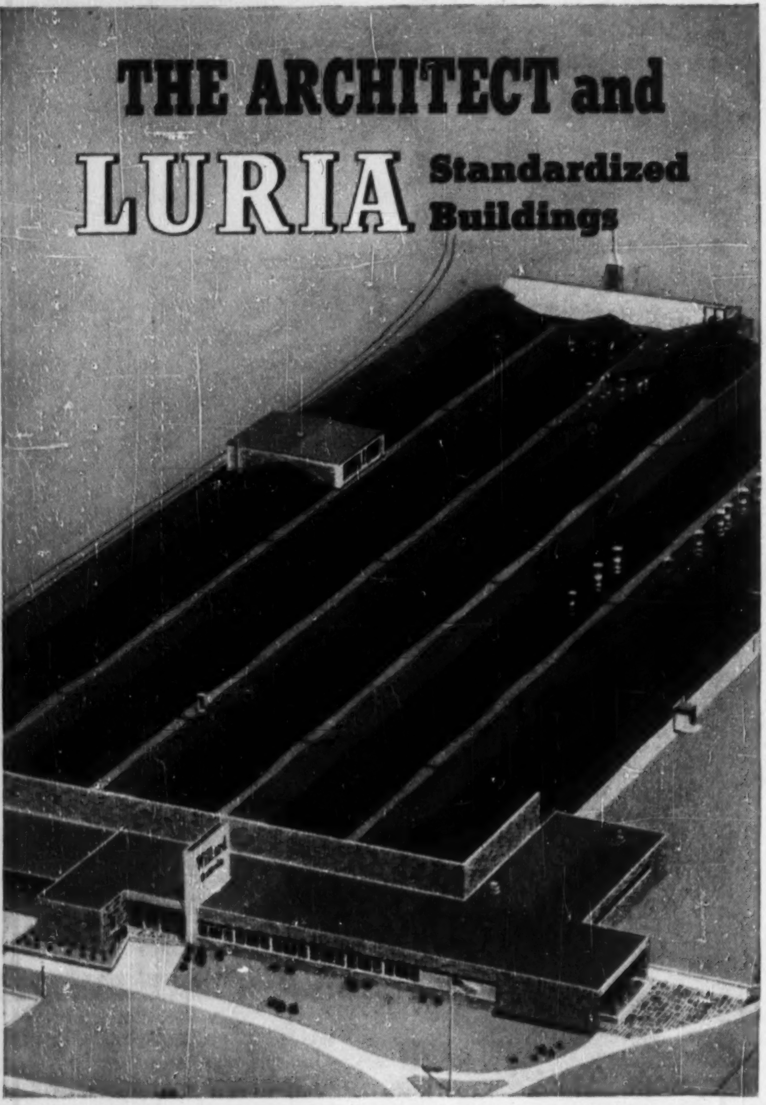

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from either 6 or 12-volt automotive electrical systems without any circuit modification.

Known as the Universal Uni-Channel Series, the radios permit greater flexibility in the operation of radio-equipped fleets having vehicles with both 6- and 12-volt systems since the mobile units may be interchanged indiscriminately without regard to the type of vehicle. The power cable kits permanently installed in the vehicles differ with the battery voltage so that, in effect, automatic switching occurs when the radio is transferred from one vehicle to another.

Economy of maintenance and operation is claimed. Manufacturer's tests have demonstrated vibrator life in excess of 1,500 hours and markedly reduced battery drain. This example is given: power drain during transmission is only 30 amp at 6.3 v or 15 amp at 12.6 v—a drain roughly comparable with that of the average 10-watt mobile unit. Standby drain is 11 amp at 6.3 v or 5.5 amp at 12.6 v.

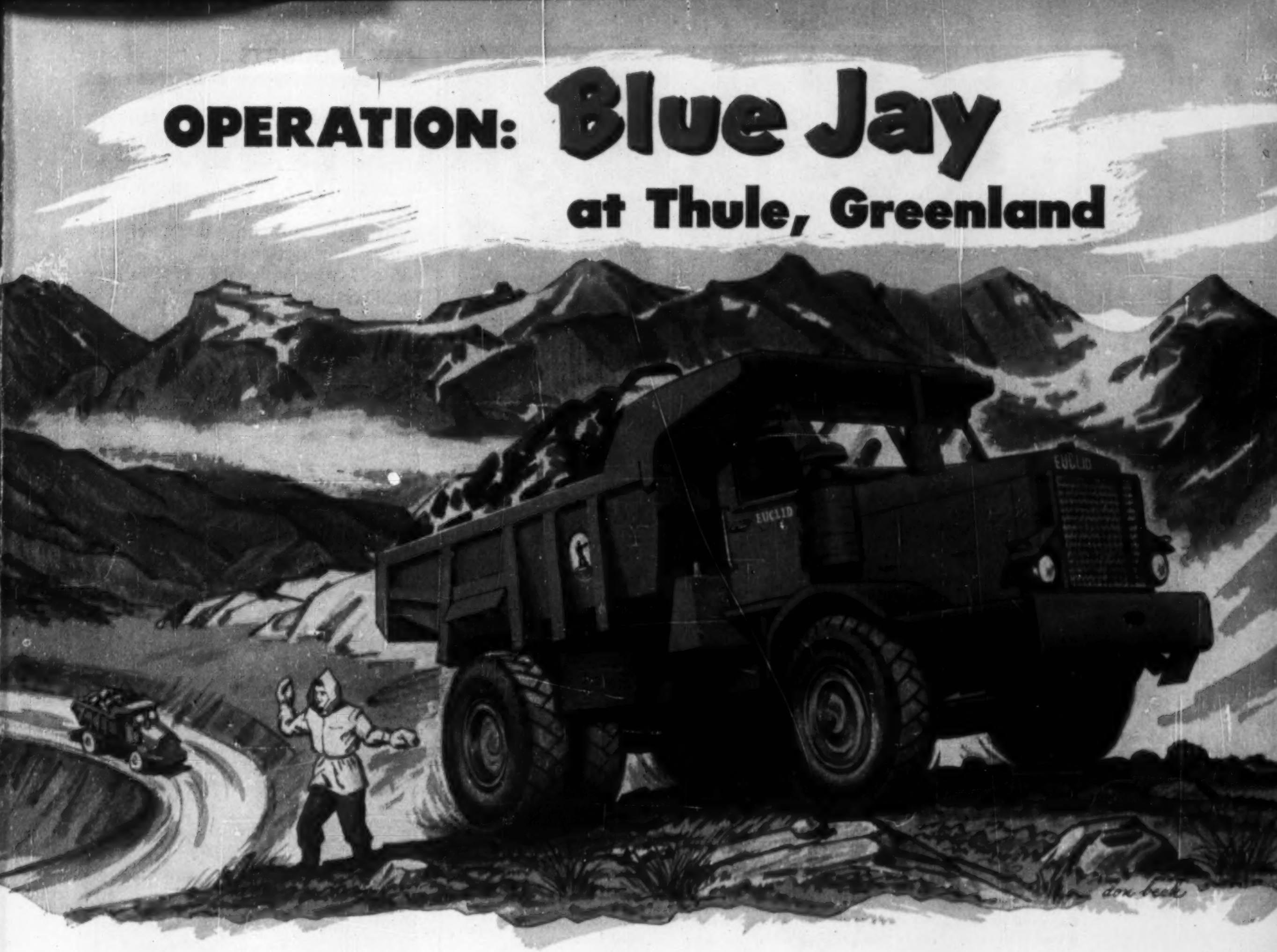
Models are available for under-dash mounting and for trunk installation with microphone, control head and speaker mounted near the driver. Both units are 6 in. high, 9⅞ in. wide and 18¼ in. long. All operational accessories are included as a part of each model. MOTOROLA COMMUNICATIONS & ELECTRONICS DIV., 4545 W. AUGUSTA BLVD., CHICAGO, ILL.

Portable drinking fountain is air-operated, insulated

A new portable drinking fountain operates on an automatic air-pressure principle—water flows from it at the touch of a button.

(*New Products continued on p. 110*)

OPERATION: Blue Jay
at Thule, Greenland



Three years ago the Army Corps of Engineers was ordered to rush construction of a giant air base at Thule in the Arctic region of northern Greenland. Architects, engineers and contractors were faced with tremendous new problems in this land of continual ice and snow where winds blow up to 150 miles an hour and temperatures drop to 30 or 40 below.

It was a big job with 12,368,000 cu. yds. of heavy excavation and fill. Because of its importance to our national defense, it had to be completed on schedule. The selection of earth moving equipment for Thule had to be made carefully for men and machines would work under the most adverse conditions . . . and they had to keep working round the clock until the project was completed.

Rear-Dump Euclids—67 of them in all—played a leading part in this record breaking earth moving project. They moved big loads of rock from quarries to crushing plants on long and short hauls. Asphalt for runways was hauled by "Eucs" with heated bodies that kept the material from freezing in spite of the bitter cold. Their rugged strength and dependable performance kept these Rear-Dumps on the job under the toughest working conditions imaginable . . . with mighty little down time for repairs.

Many of these "Eucs" have now been given another tough assignment by the East Ocean Division of the Army Corps of Engineers . . . they are being transferred to Iceland for more heavy service. On every one of the many defense installations being built by the East Ocean Division in Canada, Iceland and Greenland, "Eucs" are on duty taking the toughest jobs in stride.

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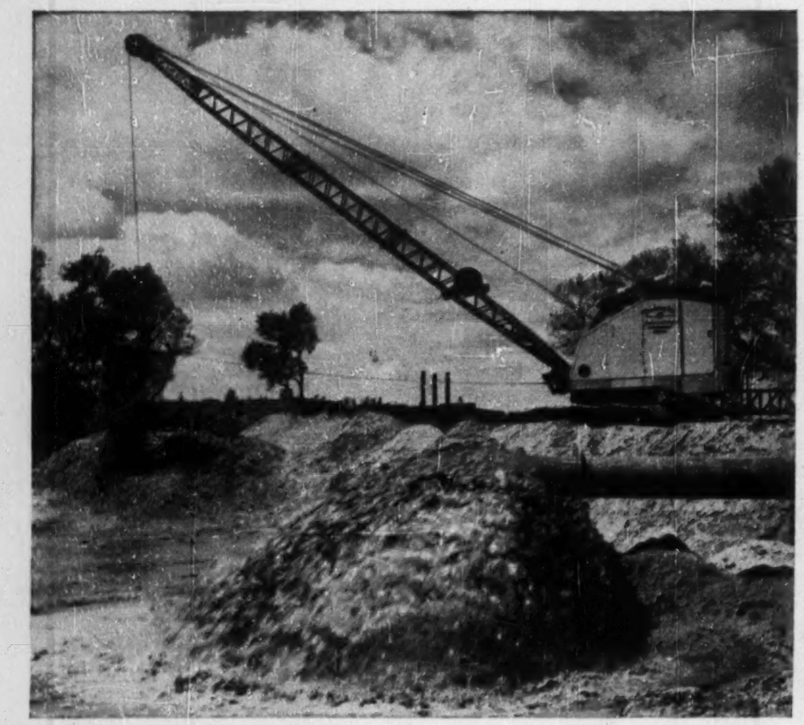

New Approach To Tax Savings

Economies effected by modern equipment and sound engineering help keep down the tax load for public construction jobs. A case in point is the Paseo Bridge project on the Missouri River at Kansas City.

One-half million cubic yards of sand fill needed for the approaches to the new bridge is obtained from the river itself. Sand-laden water is pumped from the river into a settling area, pictured above. The water is drained back into the river and the sand fill is dragged into place by a ¾ yard American Dragline.

To enter a low bid on such a project, contractors need equipment with power, speed and maneuverability. The versatile American Crawler Crane provides plenty of each.

On the Paseo Bridge project . . . and throughout America . . . leading contractors find that powerful, properly controlled American equipment helps them cut costs and keeps them on top of construction schedules.

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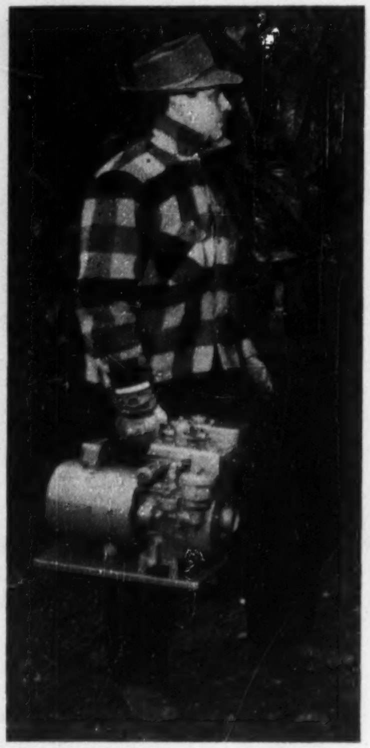
The fountain features a stainless steel inner tank that is insulated to keep the water cool, and it is said to be filled easily since it snaps open and closed. Price is $34.50. A shoulder strap, spill cup and salt tablet dispenser are optional at extra cost. MINK-DAYTON, INC., 117 N. FINDLAY ST., DAYTON 3, OHIO.



Lightweight generator has 1,250-watt maximum output

The Model C Powerhouse is a rather compact generating unit with a maximum output of 1,250 watts and a continuous sea level rating of 1,000 watts, 115 volts, single phase, 60 cycles. Overall dimensions are 18 x 15½ x 15 in. and weight is held to approximately 85 lb.

Power for the Model C is supplied by a special 2½-hp, 4-cycle Briggs & Stratton with built-in flyball governor, ball-bearing mains and radio shielding for communications use. The engine-generator is isolated from its base by rubber vibration dampers.

According to the manufacturer, the base needs no fastening and the set will not crawl and is stable on sand, mud and snow. Standard units are gasoline operated but it can also be supplied to operate on kerosene for export applications. Butane-operated

(*New Products continued on p. 112*)

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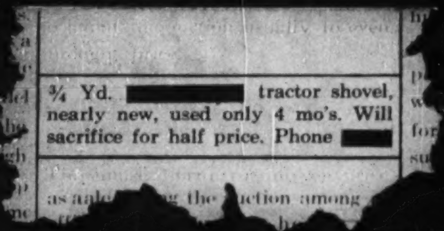
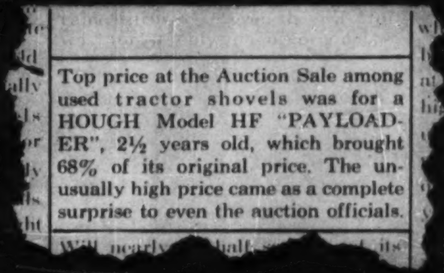


¾ Yd. [redacted] tractor shovel, nearly new, used only 4 mo's. Will sacrifice for half price. Phone [redacted]

PAYLOADER TRACTOR SHOVEL



Top price at the Auction Sale among used tractor shovels was for a HOUGH Model HF "PAYLOADER", 2½ years old, which brought 68% of its original price. The unusually high price came as a complete surprise to even the auction officials.

Wise tractor-shovel buyers know there's more value in a "PAYLOADER" when it's new and that it'll bring more when they sell it. They know that The Frank G. Hough Co. has pioneered MORE developments and MORE improvements in tractor-shovels than all other manufacturers put together.

Further proof of "PAYLOADER" value is evidenced by the fact that you will seldom find a *used* one for sale — even though more "PAYLOADER" machines have been built than all other makes of unit-design tractor-shovels combined.

So, when you want maximum value and PROVEN PERFORMANCE in a tractor-shovel, you'll be wise to buy a "PAYLOADER". A complete range of sizes and models from 12 cu. ft. to 2 cu. yd. bucket capacity. Your nearby "PAYLOADER" Distributor is ready to serve you. The Frank G. Hough Co., 772 Sunnyside Ave., Libertyville, Illinois.

This is a Model HF "PAYLOADER" tractor-shovel like the one that brought top price in the Auction Sale quoted above.

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- ★ Drop forged heat treated steel hooks, shackes, yokes and well rounded shells — bead encircled sheaves.
- ★ Impossible for ropes to jam.

McKISSICK PRODUCTS CORPORATION
Box 2496 Tulsa, Oklahoma

models are also available as is also an extra-silent muffler for quiet operation.

Price of the standard units is about $265. LYNN ENGINEERING & SUPPLY CO., RUSS BLDG., SAN FRANCISCO 4, CALIF.

Molded-circle sole tread boasts no-slip performance

Originally designed for Navy personnel working on slippery decks, a new shoe tread pattern has been introduced on industrial boots and shoes. According to the company, the new tread grips with a squeegee action to provide excellent traction on wet, icy or oily surfaces.

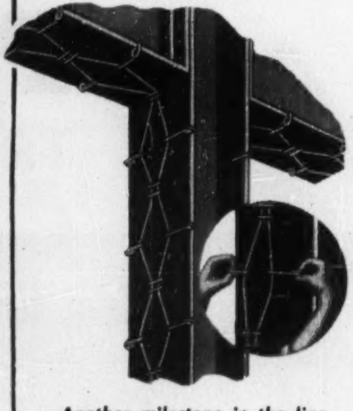
The neoprene soles are available on workshoes, high tops and oxfords and on some fleece-lined oxfords and boots. The company also plans—in a few months—to introduce the sole on galoshes, rubber boots and thermoboots that are reported to keep feet warm when outside temperatures are down to 40 F. below. FELLMAN TRI-VAC FOOTWEAR, INC., 19 W. 44TH ST., NEW YORK, N. Y.

New Products briefs . . .

• **Drafting chair**—A new drafting chair is now in production by the Ajusto Equipment Co., 2144 Madison Ave., Toledo 2, Ohio. The feature of the chair is the instant adjustment to any height—from the low to the high—without getting off the chair and without soiling the hands. Three sizes are available in seat heights from 20 to 28 in., 24 to 32 in., 28 to 36 in.

• **Diesel engine**—Sheppard Diesels, of Hanover, Pa., has added a new 4-cylinder engine to its line. The new diesel, designated as Model 16, incorporates simplified fuel injection system, fly ball type governor and positive oil spray cooled pistons. The engine has a gross rating of 78 hp at 2,000 rpm and is offered as a power unit or 30-kw generating set. It is available with either radiator, heat exchanger or tank cooling system.

expansible reed clips



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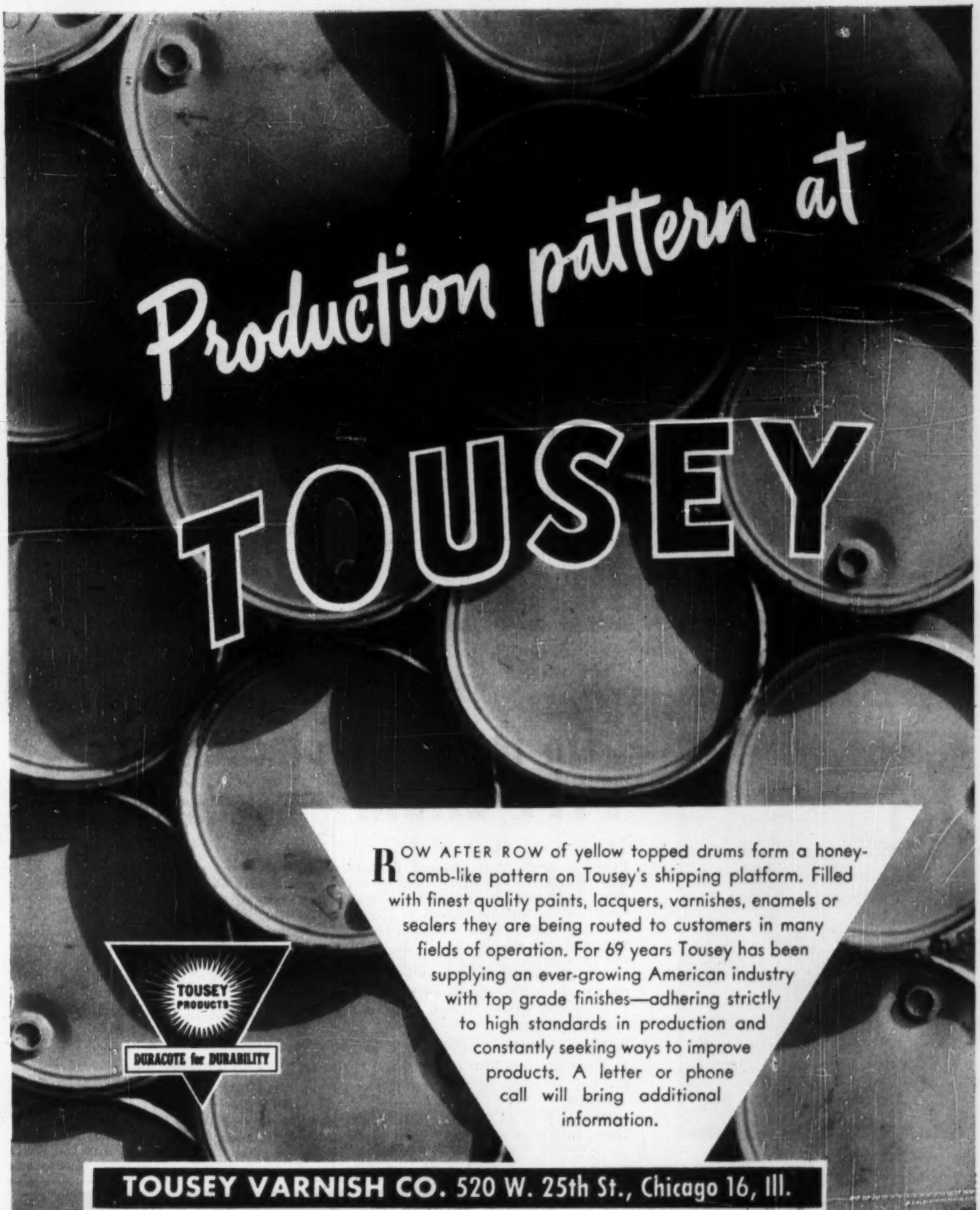

Production pattern at

TOUSEY

ROW AFTER ROW of yellow topped drums form a honeycomb-like pattern on Tousey's shipping platform. Filled with finest quality paints, lacquers, varnishes, enamels or sealers they are being routed to customers in many fields of operation. For 69 years Tousey has been supplying an ever-growing American industry with top grade finishes—adhering strictly to high standards in production and constantly seeking ways to improve products. A letter or phone call will bring additional information.

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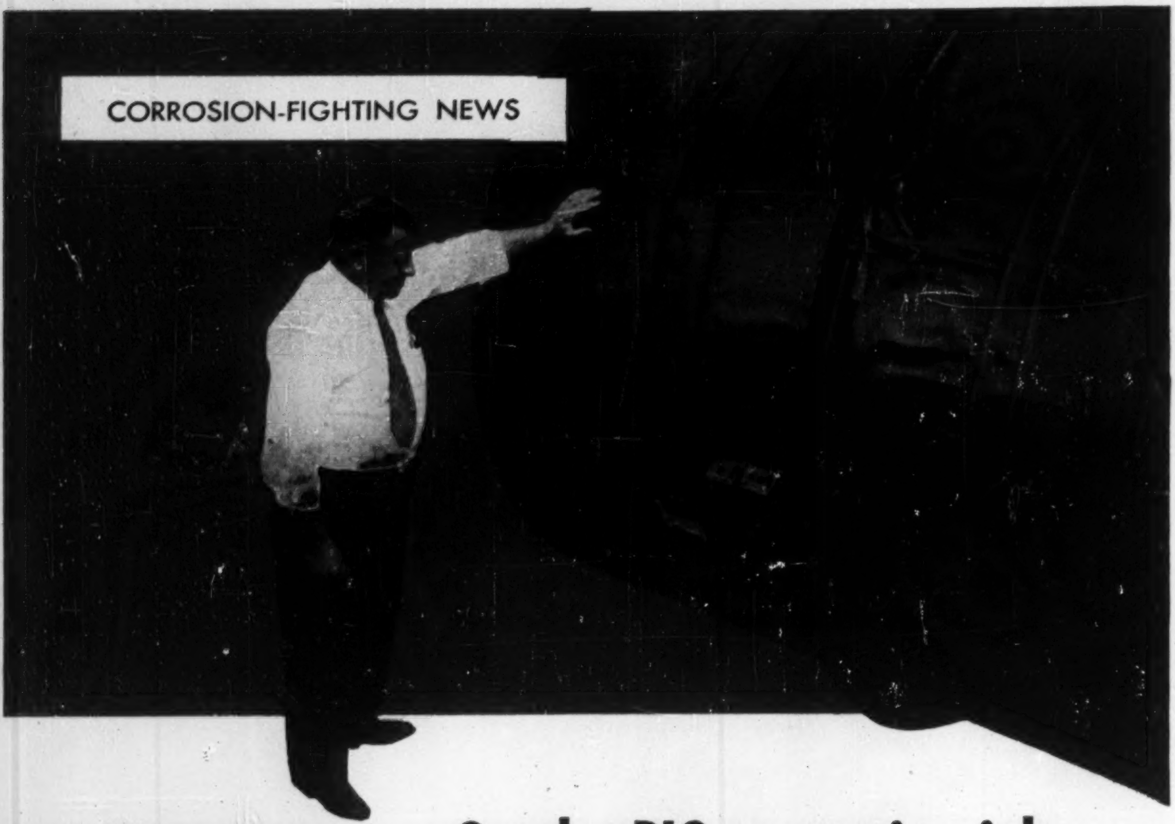
CORROSION-FIGHTING NEWS



On the BIG protection jobs
PITT CHEM gets the call

Positive protection against underground corrosion was a "must" on the installation of these vital 84-inch headers and 48-inch cooling water pipes at the Lewis Flight Propulsion Laboratory of the National Advisory Committee for Aeronautics, Cleveland, Ohio. This assured protection was provided by Pitt Chem Tar Base Coatings, which were specified by the project's engineers, H. K. Ferguson Co., Cleveland, and applied by the fabricators of the pipe, Bethlehem Steel Corp.

The distinct advantages of Pitt Chem Tar Base Coatings may solve many of your toughest corrosion problems:

1. They are made from one of the most impervious of all materials—cold tar pitch.
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3. Their applied film is up to ten times as thick as ordinary paint.
4. They provide better protection-per-dollar than any other coatings available.

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W&D 5128

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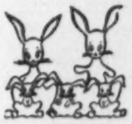

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EDITORIALS

Vindication

Excavations and discoveries around the Great Pyramid at Giza in Egypt inevitably bring to mind Kipling's well-known couplet:

> Who shall doubt "the secret hid
> Under Cheops' pyramid"
> Was that the contractor did
> Cheops out of several millions?

It is gratifying to find that at least a part of the secret connected with Cheops' massive piece of construction was a well built chamber spanned by 15-ton stones in which the pharaoh had parked the "solar boat" which symbolically would carry him to his heavenly reward. Since the chamber did its work well for some 50 centuries, Cheops may not feel cheated after all. If so, contemporary contractors whose work has been unfairly maligned can perhaps get some satisfaction from noting that justice eventually prevails.

New-type facades are not fads

It is significant that the novel types of curtain walls being used on several skyscrapers now under construction have been chosen by owners who have had extensive experience in building management and construction and also that these pioneer installations have a wide geographical distribution. Both of these facts would seem to remove these thin, light and fast-to-erect walls from the faddish category, and give the development considerable substance. What has been done to date is therefore important. Among the most significant of these new enclosures are two-story-high aluminum panels, an aluminum spandrel and window combination, porcelain-enameled steel sandwich panels and aluminum-faced sandwich panels.

That the two-story panels can be installed speedily is to be demonstrated dramatically this week when Tishman Realty & Construction Co. plans to enclose a 22-story office building in New York City with such panels between 6 a.m. and 8 p.m. of the same day. These panels later will be given a 4-in. fire-resistant backup. Cost of this wall is estimated to be relatively high, probably about $7 to $8 per sq ft.

Speedily also, but not as dramatically, Webb & Knapp Construction Co. enclosed a 26-story office building in New York with aluminum spandrels and windows (ENR June 10, p. 17). Aluminum mullions first were erected for the full height of the building at 4½-ft intervals. In each story, a ⅛-in. thick aluminum spandrel was clipped between each pair of mullions, and then a window frame was attached on top. Later, the spandrels were backed with masonry. This wall cost $4 per sq ft.

Porcelain-enameled steel sandwich panels only 1¼ in. thick were employed for the Statler Hotel in Hartford (ENR June 10, p. 31). These were clipped into aluminum frames in the same manner as window glass. No backup was required. This wall cost about $5 per sq ft. Similar sandwich panels without backup also were employed for the office building in Denver's Mile High Center (p. 32).

Aluminum sandwich panels only slightly thicker than the Statler's enclose the Republic National Bank Building in Dallas.

In attempting to evaluate these walls, too much emphasis should not be placed on the cost of panels and windows quoted by the fabricator, because of the number of other variables involved, some of which affect other operations in the construction of a building. Light walls, for example, save money on structural framing and foundations; thin walls make available for rent more interior space with the same exterior dimensions.

As with all walls, it is appearance, durability, insulation, fire resistance and ability to exclude water that will be the dominant considerations in the eventual success of these new facades. And it will be local building codes which will continue to influence the types of wall construction used because of the wide variation among cities in requirements for fire resistance.

Apparently, there is considerable confidence that the new wall types have the necessary and desirable physical characteristics for skyscraper facades. They will have to prove themselves on a cost basis, and stand up to insulation and fire resistance requirements. But enough installations have been made to assure that experience will be gained in these particulars. In the meantime, the willingness of experienced building owners to experiment with them indicates a favorable economic climate. The future, therefore, looks bright for the new-type facades.

Watch those record claims

A new record for the spans of the three-hinged steel arches for hangars at the Greater Pittsburgh Airport was claimed in an account of the erection of those arches in ENR April 8, p. 33.

That claim started arch designers to doing a bit of research. As a result, we learn that the 278-ft span at the Pittsburgh Airport is insignificant alongside the span of two structures built more than a half century ago (ENR May 13, p. 11). The span of the arches for the roof of the Manufacturers and Liberal Arts Building at the World's Columbian Exposition in Chicago in 1893 was 368 ft, and three-hinged arches for the roof of the Gallery of Machines at the Universal Exposition in Paris in 1889 had a span of 362 ft.

When reviewing the records of structural design since steel first became available we still have to take our hats off to the designers of that day. They exhibited a boldness that is seldom surpassed, even in these days of better steel and more advanced structural knowledge.

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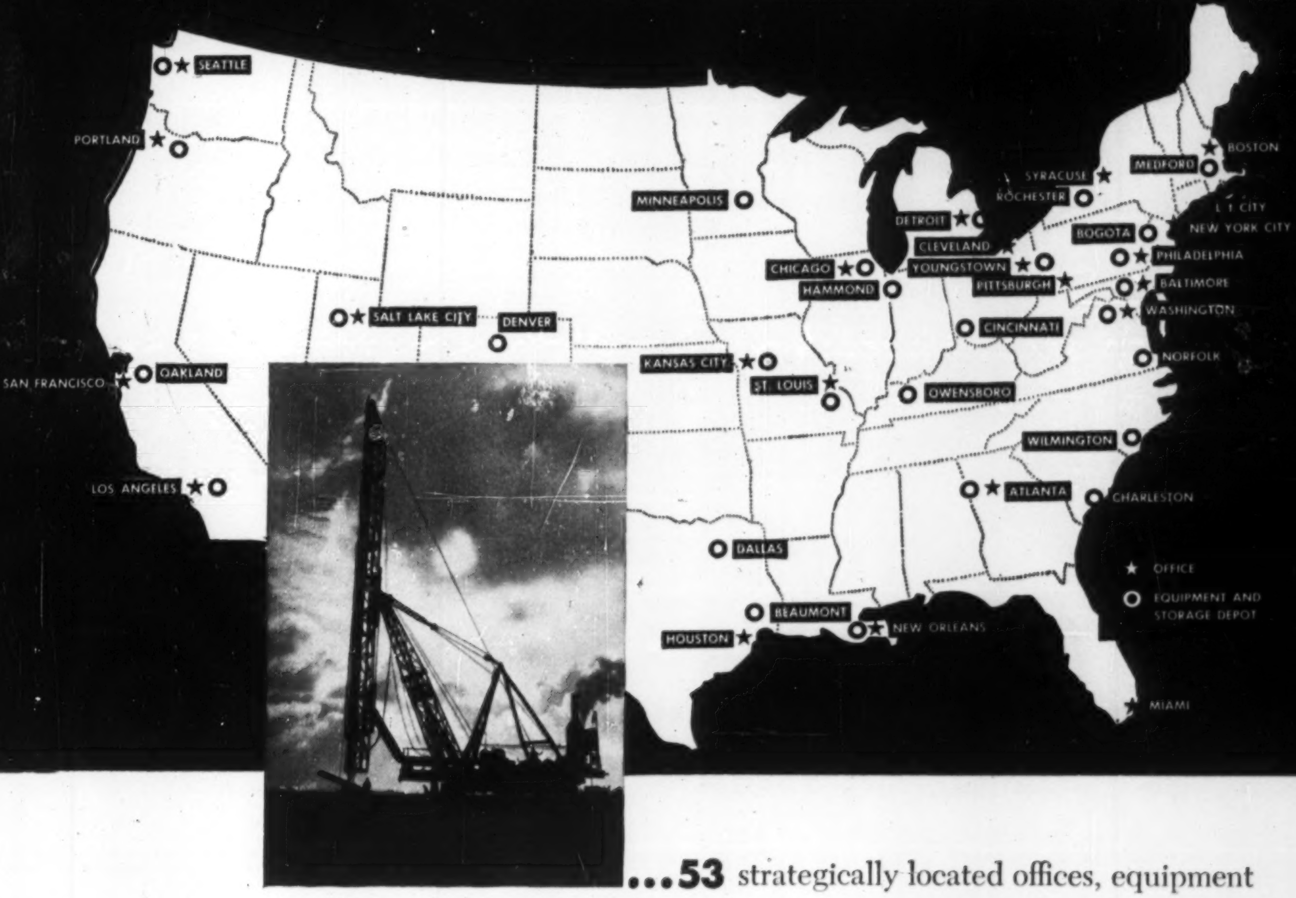
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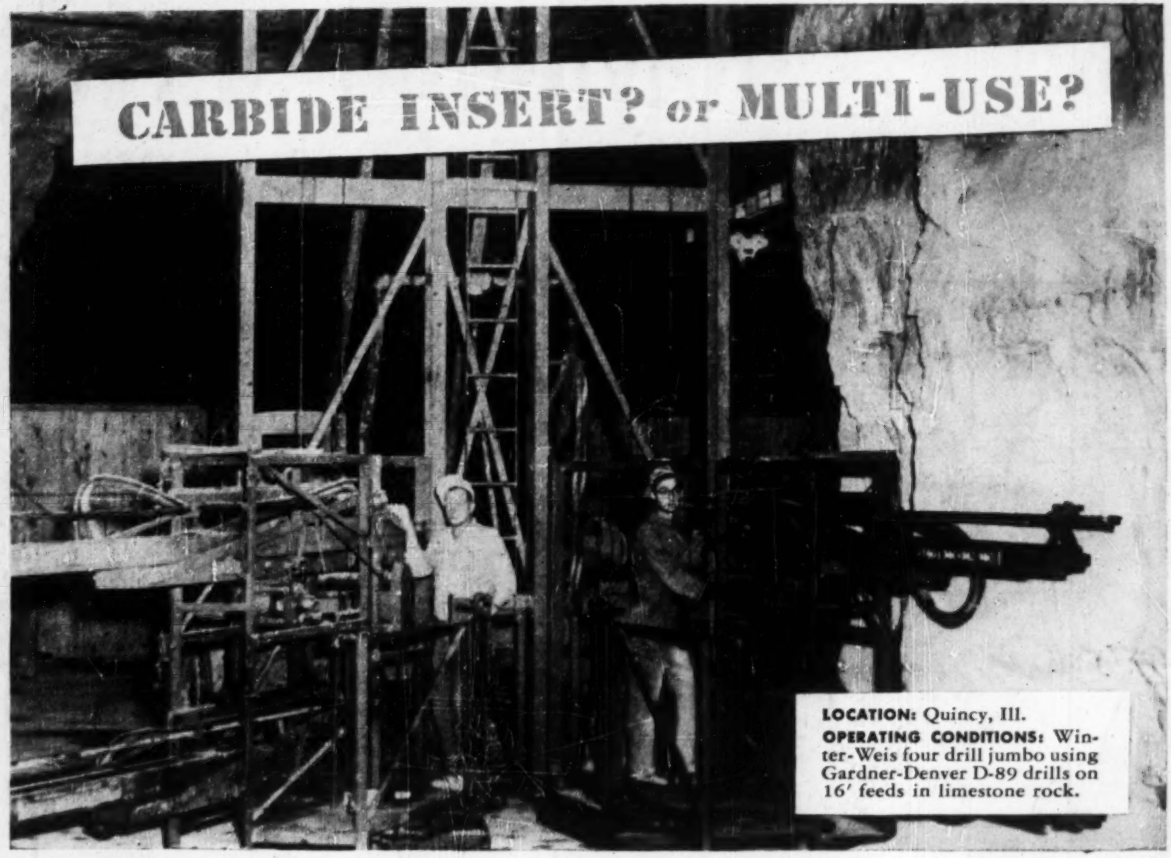

LOCATION: Quincy, Ill.
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